DRINKING WATER SURVEILLANCE PROGRAM

SIMCOE
WELL SUPPLY

ANNUAL REPORT 1990

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

SIMCOE WELL SUPPLY
1990 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1990, 76 systems were being monitored.

The Simcoe well supply is a groundwater source and consists of numerous wells which collect and pump water from several aquifers. The only treatment the raw water receives is the addition of sodium silicate for iron/manganese sequestering where required, fluoridation and disinfection. The Simcoe well supply serves a population of approximately 14,200.

Raw water at three well locations, treated water from a reservoir and two locations in the distribution system were sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), and organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons, specific pesticides and volatiles). Samples were analyzed for specific pesticides and chlorophenols twice a year in the spring and fall.

Table A (one for each source sampled) is a summary of all results by group.

Although, no known health related guidelines were exceeded, numerous volatile organic compounds were detected at low positive and trace levels in the wells that were sampled. All wells supplying the system should be sampled at least once during the year to clarify the source of contamination.

The Simcoe Well Supply, for the sample year 1990, produced "adequate" quality water and this was maintained in the distribution system.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY (WELL NO. 4)

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	SITE WELL RAW TESTS	POSITIVE	%POSITIVE	TREATED TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	27	5	18	9	9	100
CHEMISTRY (FLD)	16	16	100	33	31	93
CHEMISTRY (LAB)	198	174	87	198	164	82
METALS	216	78	36	216	68	31
CHLOROAROMATICS	112	0	0	126	0	0
CHLOROPHENOLS	12	0	0	12	0	0
PAH	151	0	0	151	0	0
PESTICIDES & PCB	286	0	0	307	0	0
PHENOLICS	8	0	0	9	0	0
SPECIFIC PESTICIDES	59	0	0	60	0	0
VOLATILES	261	0	0	232	41	17
TOTAL	1346	273		1353	313	

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE

A '.' INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	SITE RAW TESTS	POSITIVE	%POSITIVE	SITE 1 TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	27	2	7	8	7	87
CHEMISTRY (FLD)	16	16	100	71	29	40
CHEMISTRY (LAB)	198	168	84	323	281	86
METALS	216	76	35	391	163	41
CHLOROAROMATICS	126	0	0	98	0	0
CHLOROPHENOLS	12	0	0	.	.	.
PAH	134	0	0	.	.	.
PESTICIDES & PCB	307	0	0	148	0	0
PHENOLICS	9	0	0	.	.	.
SPECIFIC PESTICIDES	60	0	0	7	0	0
VOLATILES	261	0	0	261	35	13
TOTAL	1366	262		1307	515	

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	SITE RAW TESTS	POSITIVE	%POSITIVE	SITE 1 TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	27	1	3	9	5	55
CHEMISTRY (FLD)	18	18	100	85	78	91
CHEMISTRY (LAB)	198	154	77	323	254	78
METALS	216	95	43	391	145	37
CHLOROAROMATICS	126	0	0	126	0	0
CHLOROPHENOLS	12	0	0	.	.	.
PAH	134	0	0	17	0	0
PESTICIDES & PCB	294	0	0	191	0	0
PHENOLICS	9	1	11	.	.	.
SPECIFIC PESTICIDES	61	0	0	9	0	0
VOLATILES	261	33	12	261	18	6
TOTAL	1356	302		1412	500	

DRINKING WATER SURVEILLANCE PROGRAM

SIMCOE WELL SUPPLY
1990 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1990, 76 systems were being monitored.

Appendix A has a full description of the DWSP.

The DWSP was initiated for the Simcoe Well Supply in April of 1990. This is the first DWSP annual report.

PLANT DESCRIPTION

The Simcoe well supply is a groundwater source consisting of numerous wells which collect and pump water from several aquifers. Treatment of raw water includes sodium silicate addition for iron/manganese sequestering where required, fluoridation and disinfection. The Simcoe well supply serves a population of approximately 14,200.

A sample day flow was 4.6 x 1000 m^3/day.

General plant information is presented in Table 1.

SAMPLING AND ANALYSES

Sample lines at the well head and reservoir were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At all distribution system locations two types of samples were obtained, a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples were used to make an assessment of the change in the levels of inorganic compounds and metals, due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples therefore, were General Chemistry and Metals. The free flow sample represented fresh water from the distribution main, since the sample tap was flushed for five minutes prior to sampling.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. Retention time was calculated by dividing the volume of water between two sampling points by sample day flow. For example, if it was determined that retention time within the plant was five hours, then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner (see Appendix B).

Plant operating personnel routinely analyze parameters for process control (Table 2).

Raw water samples were taken from three wells; #4 at Cedar Street, North West #1, and 1st Ave. Treated water was sampled from the reservoir at the Cedar Street pumping station and at two locations in the distribution system. If contact time, after chlorination, was less than 15 minutes treated water was not sampled at that well. Samples were analyzed for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), and organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons, specific pesticides and volatiles). Samples were analyzed for specific pesticides and chlorophenols twice a year in the spring and fall. Laboratory analyses were conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 3 contains information on delay time between raw and treated water sampling, flow rate, and treatment chemical dosages.

Table 4 is a summary break-down of the number of water samples analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on Tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives publication (ODWOs). When an Ontario Drinking Water Objective (ODWO) was not available, guidelines/limits from other agencies were used. These guidelines were obtained from the Parameter Listing System database.

IN THIS REPORT, DISCUSSION IS LIMITED TO:

- **RESULTS FROM RAW AND DISTRIBUTED WATERS;**
- **THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES;**
- **POSITIVE ORGANIC PARAMETERS DETECTED; AND**
- **PERSISTENT TRACES OF ORGANIC PARAMETERS IN THE RAW WATER.**

In this report comments are combined for all sample locations for each parameter discussed. The water in the distribution system can be a mixture from many sources. Due to the many wells supplying this water system and the relatively few sample locations on DWSP, this report does not provide a complete picture of the drinking water quality.

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples.

Standard plate count is a test used to supplement routine analysis for coliform bacteria. The limit for standard plate count (at 35°C after 48 hours) in the ODWOs is 500 counts/mL (based on a geometric mean of 5 or more samples). DWSP bacteriological analysis of treated and distributed water was limited to standard plate count, which may indicate some deterioration in water quality if the guideline of 500 counts/mL is exceeded.

Standard plate count (membrane filtration) exceeded ODWO Maximum

Desirable Concentration of 500 counts/mL in 5 of 9 treated water samples from the reservoir and in 9 of 17 water samples in the two distribution locations with a maximum reported value of 2.400 counts/mL.

INORGANIC & PHYSICAL

CHEMISTRY (FIELD)

It is desirable that the temperature of drinking water be less than 15°C. The palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of the soil in late summer and fall and/or as a result of higher temperatures in the source water.

Field temperature exceeded the ODWO Maximum Desirable Concentration of 15°C in 4 of 16 distributed water samples with a maximum reported value of 18.0°C.

CHEMISTRY (LAB)

Colour in drinking water may be due to the presence of natural or synthetic substances as well as certain metallic ions.

Colour exceeded the ODWO Maximum Desirable Concentration of 5 Hazen units (HZU) in 1 distribution water sample with a reported value of 15.5 HZU.

Elevated conductivity is often associated with high hardness levels.

Conductivity exceeded the European Economic Community Aesthetic Guideline Level of 400 umho/cm in all 27 treated water samples from the reservoir and the two distribution locations with a maximum reported value of 699.0 umho/cm.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption.

Hardness exceeded the ODWO Aesthetic or Recommended Operational Guideline of 80-100 mg/L in the 27 treated water samples from the reservoir and the two distribution locations with a maximum reported value of 302.7 mg/L.

PH exceeded the ODWO Aesthetic or Recommended Operational Guideline of 6.5-8.5 pH units in 1 of each distribution water samples with a maximum reported value of 8.56 pH units. It should be noted that the corresponding field pH results did not confirm the laboratory results.

METALS

Iron/manganese sequestering (converted to a stable, soluble state) using sodium silicate is used at most wells in the system.

Manganese in high concentrations, if it precipitates, can contribute to laundry staining and undesirable tastes.

Manganese exceeded the ODWO Maximum Desirable Concentration of 50 ug/L in 1 treated water sample with a reported value of 63.0 ug/L.

Unusually high copper levels were reported in the standing sample at one distribution location. The values ranged from 1.200 ug/L to 2.600 ug/L of copper. In the free-flow sample levels were as high as 500 ug/L. Since the Langeliers index was positive, corrosion of the copper plumbing would not be expected. Other metals, such as lead and zinc, were also reported at elevated levels. This site, in a newly developed subdivision, was approximately three years old. It is suspected that there may be an electrical grounding problem.

ORGANIC

CHLOROAROMATICS

The results of the chloroaromatic scan showed that none were detected.

CHLOROPHENOLS

The results of the chlorophenol scan showed that none were detected.

POLYAROMATIC HYDROCARBONS (PAH)

The results of the PAH scan showed that none were detected.

PESTICIDES & PCB

The results of the PCB scan showed that none were detected.

The results of the pesticides scan showed that one pesticide, Atrazine, was detected at trace levels in 6 of 8 raw water samples from the 1st Ave well.

PHENOLICS

Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes. The ODWOs recommend, as an operational guideline, that phenolic substances in drinking water not exceed 2.0 ug/L. This limit has been set primarily to prevent undesirable taste and odours, particularly in chlorinated water. No results exceeded the guideline.

SPECIFIC PESTICIDES

The results of the specific pesticides scan showed that none were detected.

VOLATILES

Benzene was found at positive levels in 6 of the 8 treated water samples from the reservoir with a maximum reported value of 2.1 ug/L. This was below the ODWO Maximum Acceptable Concentration of 5 ug/L. Benzene was found at positive levels in 1 distributed water sample with a reported value of 0.7 ug/L and was also detected at trace levels in 6 samples at this same location.

Special samples were taken from the other 4 wells in the network supplying the reservoir and analyzed for volatile organics. Results showed that benzene was not detected. Further testing is required to determine the source of the benzene.

Chloroform was reported at positive levels in all 9 raw water samples from the 1st Ave well and ranged from 8.0 ug/L to 13.2 ug/L. Reassesment of the raw water sample location revealed that chloroform was present in the aquifier. The ODWO Maximum Acceptable Concentration is 350 ug/L.

1,1,1-Trichloroethane was detected at positive levels in all 9 raw water samples taken from the 1st Ave well with a maximum reported value of 1.18 ug/L. 1,1,1-Trichloroethane was also detected at trace levels in 7 samples from one distribution system site. All results were below the United States Environmental Protection Agency Maximum Contaminant Level of 200 ug/L.

1,2-Dichloropropane was detected at positive levels in 7 of 9 raw water samples from the 1st Ave well with a maximum reported value of 0.7 ug/L. The United States Environmental Protection Agency has a Maximum Contaminant Level of 5 ug/L.

Tetrachloroethylene was detected at trace levels in 6 of 9 raw water samples from the 1st Ave well.

Trichloroethylene was detected at trace levels in 7 treated water samples from the reservoir and in 8 samples from one distribution system site.

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of chloroform, chlorodibromomethane and dichlorobromomethane; bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. Only total THMs results are discussed.

Total THMs were found at positive levels in 7 of the 9 treated water samples from the reservoir with a maximum reported value of 39.5 ug/L and in 11 of 18 distributed water samples with a maximum reported value of 21.9 ug/L. This was below the ODWO Maximum Acceptable Concentration of 350 ug/L.

CONCLUSIONS

The Simcoe Well Supply, for the sample year 1990, produced "adequate" quality water which was maintained in the distribution.

Although, no known health related guidelines were exceeded, numerous volatile organic compounds were detected at low positive and trace levels in wells that were sampled. To clarify the source of some contaminants, all wells supplying the system should be sampled at least once during the year.

Further investigation is needed to detect the source of positive levels of benzene in the reservoir.

The cause of high levels of some metals in the standing samples of one distribution system site should be investigated.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM

PLANT GENERAL REPORT

WORKS #: 220000371
PLANT NAME: SIMCOE WELL SUPPLY

DISTRICT: HAMILTON
REGION: WEST CENTRAL
DISTRICT OFFICER: J. VOGT

UTM #:

PLANT SUPERINTENDENT: MR JIM WALKER

ADDRESS: 396 CEDAR ST
SIMCOE,ONTARIO
N3Y 2J2
(519 426 3453)

MUNICIPALITY: TOWN OF SIMCOE
AUTHORITY: HALDIMAND-NORFOLK REGION

PLANT INFORMATION

PLANT VOLUME:	-	(X 1000 M3)
DESIGN CAPACITY:	12.5	(X 1000 M3/DAY)
RATED CAPACITY:	-	(X 1000 M3/DAY)

MUNICIPALITY	POPULATION
SIMCOE	14,196

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY SAMPLE DAY CONDITIONS FOR 1990

			TREATMENT CHEMICAL DOSAGE (MG/L)	
			PRE CHLORINATION	FLUORIDATION
			CHLORINE	HYDROFLUOSILICIC ACI
DATE	DELAY * TIME(HRS)	FLOW (1000M3)		
JUN 04	.00	.000	.81	.59
JUL 03	24.00	4.581	.55	1.20

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	WELL RAW TOTAL	POSITIVE	TRACE	TREATED TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL						
FECAL COLIFORM MF	9	0	0	.	.	.
STANDRD PLATE CNT MF	.	.	.	9	9	0
TOTAL COLIFORM MF	9	1	0	.	.	.
T COLIFORM BCKGRD MF	9	4	0	.	.	.
*TOTAL GROUP BACTERIOLOGICAL	27	5	0	9	9	0
CHEMISTRY (FLD)						
FLD CHLORINE (COMB)	.	.	.	3	1	0
FLD CHLORINE FREE	.	.	.	7	7	0
FLD CHLORINE (TOTAL)	.	.	.	7	7	0
FLD PH	8	8	0	8	8	0
FLD TEMPERATURE	8	8	0	8	8	0
*TOTAL SCAN CHEMISTRY (FLD)	16	16	0	33	31	0
CHEMISTRY (LAB)						
ALKALINITY	9	9	0	9	9	0
CALCIUM	9	9	0	9	9	0
CYANIDE	9	0	0	9	0	0
CHLORIDE	9	9	0	9	9	0
COLOUR	9	9	0	9	9	0
CONDUCTIVITY	9	9	0	9	9	0
DISS ORG CARBON	9	9	0	9	9	0
FLUORIDE	9	9	0	9	9	0
HARDNESS	9	9	0	9	9	0
IONCAL	9	9	0	9	9	0
LANGELIERS INDEX	9	9	0	9	9	0
MAGNESIUM	9	9	0	9	9	0
SODIUM	9	9	0	9	9	0
AMMONIUM TOTAL	9	9	0	9	1	0
NITRITE	9	9	0	9	2	4
TOTAL NITRATES	9	9	0	9	9	0
NITROGEN TOT KJELD	9	9	0	9	8	1
PH	9	9	0	9	9	0
PHOSPHORUS FIL REACT	9	1	6	9	6	2
PHOSPHORUS TOTAL	9	2	5	9	4	4
SULPHATE	9	9	0	9	9	0
TURBIDITY	9	9	0	9	8	1
*TOTAL SCAN CHEMISTRY (LAB)	198	174	11	198	164	12

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	WELL RAW TOTAL	POSITIVE	TRACE	TREATED TOTAL	POSITIVE	TRACE
METALS						
SILVER	9	0	0	9	0	0
ALUMINUM	9	9	0	9	9	0
ARSENIC	9	0	7	9	0	6
BARIUM	9	9	0	9	9	0
BORON	9	6	3	9	5	4
BERYLLIUM	9	0	1	9	0	2
CADMIUM	9	0	0	9	0	1
COBALT	9	0	6	9	0	6
CHROMIUM	9	1	6	9	1	4
COPPER	9	0	9	9	0	9
IRON	9	9	0	9	5	4
MERCURY	9	1	1	9	0	2
MANGANESE	9	9	0	9	9	0
MOLYBDENUM	9	3	6	9	0	9
NICKEL	9	2	0	9	2	1
LEAD	9	0	3	9	0	5
ANTIMONY	9	1	8	9	2	7
SELENIUM	9	0	0	9	0	7
STRONTIUM	9	9	0	9	9	0
TITANIUM	9	9	0	9	9	0
THALLIUM	9	0	0	9	0	0
URANIUM	9	5	4	9	3	6
VANADIUM	9	0	6	9	1	7
ZINC	9	5	4	9	4	5
*TOTAL SCAN METALS	216	78	64	216	68	85
*TOTAL GROUP INORGANIC & PHYSICAL	430	268	75	447	263	97
CHLOROAROMATICS						
HEXACHLOROBUTADIENE	8	0	0	9	0	0
123 TRICHLOROBENZENE	8	0	0	9	0	0
1234 T-CHLOROBENZENE	8	0	0	9	0	0
1235 T-CHLOROBENZENE	8	0	0	9	0	0
124 TRICHLOROBENZENE	8	0	0	9	0	0
1245 T-CHLOROBENZENE	8	0	0	9	0	0
135 TRICHLOROBENZENE	8	0	0	9	0	0
HCB	8	0	0	9	0	0
HEXACHLOROETHANE	8	0	0	9	0	1
OCTACHLOROSTYRENE	8	0	0	9	0	0
PENTACHLOROBENZENE	8	0	0	9	0	0
236 TRICHLOROTOLUENE	8	0	0	9	0	0
245 TRICHLOROTOLUENE	8	0	0	9	0	0
26A TRICHLOROTOLUENE	8	0	0	9	0	0
*TOTAL SCAN CHLOROAROMATICS	112	0	0	126	0	1

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	WELL RAW TOTAL	POSITIVE	TRACE	TREATED TOTAL	POSITIVE	TRACE
CHLOROPHENOLS						
234 TRICHLOROPHENOL	2	0	0	2	0	0
2345 T-CHLOROPHENOL	2	0	0	2	0	0
2356 T-CHLOROPHENOL	2	0	0	2	0	0
245-TRICHLOROPHENOL	2	0	0	2	0	0
246-TRICHLOROPHENOL	2	0	0	2	0	0
PENTACHLOROPHENOL	2	0	0	2	0	0
*TOTAL SCAN CHLOROPHENOLS	12	0	0	12	0	0
PAH						
PHENANTHRENE	9	0	0	9	0	0
ANTHRACENE	8	0	0	8	0	0
FLUORANTHENE	9	0	0	9	0	0
PYRENE	9	0	0	9	0	0
BENZO(A)ANTHRACENE	9	0	0	9	0	0
CHRYSENE	9	0	0	9	0	0
DIMETH. BENZ(A)ANTHR	8	0	0	8	0	0
BENZO(E) PYRENE	9	0	0	9	0	0
BENZO(B) FLUORANTHEN	9	0	0	9	0	0
PERYLENE	9	0	0	9	0	0
BENZO(K) FLUORANTHEN	9	0	0	9	0	0
BENZO(A) PYRENE	9	0	0	9	0	0
BENZO(G,H,I) PERYLEN	9	0	0	9	0	0
DIBENZO(A,H) ANTHRAC	9	0	0	9	0	0
INDENO(1,2,3-C,D) PY	9	0	0	9	0	0
BENZO(B) CHRYSENE	9	0	0	9	0	0
CORONENE	9	0	0	9	0	0
*TOTAL SCAN PAH	151	0	0	151	0	0
PESTICIDES & PCB						
ALDRIN	8	0	0	9	0	0
ALPHA BHC	8	0	0	9	0	0
BETA BHC	8	0	0	9	0	0
LINDANE	8	0	0	9	0	0
ALPHA CHLORDANE	8	0	0	9	0	0
GAMMA CHLORDANE	8	0	0	9	0	0
DIELORIN	8	0	0	9	0	0
METHOXYCHLOR	8	0	0	9	0	0
ENDOSULFAN 1	8	0	0	9	0	0
ENDOSULFAN II	8	0	0	9	0	0
ENDRIN	8	0	0	9	0	0
ENDOSULFAN SULPHATE	8	0	0	9	0	0
HEPTACHLOR EPOXIDE	8	0	0	9	0	0
HEPTACHLOR	8	0	0	9	0	0
MIREX	8	0	0	9	0	0
OXYCHLORDANE	8	0	0	9	0	0
OPDDT	8	0	0	9	0	0
PCB	8	0	0	9	0	0
DDD	8	0	0	9	0	0
PPDDE	8	0	0	9	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	WELL RAW TOTAL	POSITIVE	TRACE	TREATED TOTAL	POSITIVE	TRACE
PPDDT	8	0	0	9	0	0
AMETRINE	9	0	0	9	0	0
ATRAZINE	9	0	1	9	0	0
ATRATONE	9	0	0	9	0	0
CYANAZINE (BLADEX)	9	0	0	9	0	0
DESETHYLATRAZINE	9	0	0	9	0	0
D-ETHYL SIMAZINE	8	0	0	8	0	0
PROMETONE	9	0	0	9	0	0
PROPAZINE	9	0	0	9	0	0
PROMETRYNE	9	0	0	9	0	0
METRIBUZIN (SENCOR)	9	0	0	9	0	0
SIMAZINE	9	0	0	9	0	0
ALACHLOR (LASSO)	9	0	0	9	0	0
METOLACHLOR	9	0	0	9	0	0
HEXACLCYCLOPENTADIEN	2	0	0	2	0	0
*TOTAL SCAN PESTICIDES & PCB	286	0	1	307	0	0
PHENOLICS						
PHENOLICS	8	0	6	9	0	3
*TOTAL SCAN PHENOLICS	8	0	6	9	0	3
SPECIFIC PESTICIDES						
TOXAPHENE	8	0	0	9	0	0
2,4,5-T	2	0	0	2	0	0
2,4-D	2	0	0	2	0	0
2,4-DB	2	0	0	2	0	0
2,4 D PROPIONIC ACID	2	0	0	2	0	0
DICAMBA	2	0	0	2	0	0
PICHLORAM	0	0	0	0	0	0
SILVEX	2	0	0	2	0	0
DIAZINON	2	0	0	2	0	0
DICHLOROVOS	2	0	0	2	0	0
CHLORPYRIFOS	2	0	0	2	0	0
ETHION	2	0	0	2	0	0
AZINPHOS-METHYL	0	0	0	0	0	0
MALATHION	2	0	0	2	0	0
MEVINPHOS	2	0	0	2	0	0
METHYL PARATHION	2	0	0	2	0	0
METHYLTRITHION	2	0	0	2	0	0
PARATHION	2	0	0	2	0	0
PHORATE	1	0	0	1	0	0
RELOAN	2	0	0	2	0	0
RONNEL	2	0	0	2	0	0
AMINOCARB	0	0	0	0	0	0
BENOMYL	0	0	0	0	0	0
BUX	0	0	0	0	0	0
CARBOFURAN	2	0	0	2	0	0
CICP	2	0	0	2	0	0
DIALLATE	2	0	0	2	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	WELL RAW TOTAL	POSITIVE	TRACE	TREATED TOTAL	POSITIVE	TRACE
EPTAM	2	0	0	2	0	0
IPC	2	0	0	2	0	0
PROPOXUR	2	0	0	2	0	0
CARBARYL	2	0	0	2	0	0
BUTYLATE	2	0	0	2	0	0
*TOTAL SCAN SPECIFIC PESTICIDES	59	0	0	60	0	0
VOLATILES						
BENZENE	9	0	2	8	6	1
TOLUENE	9	0	0	8	0	0
ETHYLBENZENE	9	0	4	8	0	5
P-XYLENE	9	0	0	8	0	0
M-XYLENE	9	0	0	8	0	0
O-XYLENE	9	0	0	8	0	0
STYRENE	9	0	5	8	0	5
1,1 DICHLOROETHYLENE	9	0	0	8	0	0
METHYLENE CHLORIDE	9	0	0	8	0	0
T1,2DICHLOROETHYLENE	9	0	0	8	0	0
1,1 DICHLOROETHANE	9	0	0	8	0	0
CHLOROFORM	9	0	4	8	8	0
111, TRICHLOROETHANE	9	0	0	8	0	6
1,2 DICHLOROETHANE	9	0	0	8	0	1
CARBON TETRACHLORIDE	9	0	0	8	0	0
1,2 DICHLOROPROPANE	9	0	0	8	0	3
TRICHLOROETHYLENE	9	0	0	8	0	7
DICHLOROBROMOMETHANE	9	0	0	8	8	0
112 TRICHLOROETHANE	9	0	0	8	0	0
CHLORODIBROMOMETHANE	9	0	0	8	7	1
T-CHLOROETHYLENE	9	0	0	8	0	0
BROMOFORM	9	0	0	8	5	2
1122 T-CHLOROETHANE	9	0	0	8	0	0
CHLOROBENZENE	9	0	0	8	0	0
1,4 DICHLOROBENZENE	9	0	0	8	0	0
1,3 DICHLOROBENZENE	9	0	0	8	0	0
1,2 DICHLOROBENZENE	9	0	0	8	0	0
ETHLYENE DIBROMIDE	9	0	0	8	0	1
TOTL TRIHALOMETHANES	9	0	0	8	7	1
*TOTAL SCAN VOLATILES	261	0	15	232	41	33
*TOTAL GROUP ORGANIC	889	0	22	897	41	37

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
BACTERIOLOGICAL						
FECAL COLIFORM MF	9	0	0	.	.	.
STANDRD PLATE CNT MF	.	.	.	8	7	0
TOTAL COLIFORM MF	9	0	0	.	.	.
T COLIFORM BCKGRD MF	9	2	0	.	.	.
*TOTAL GROUP BACTERIOLOGICAL	27	2	0	8	7	0
CHEMISTRY (FLD)						
FLD CHLORINE (COMB)	.	.	.	14	0	0
FLD CHLORINE FREE	.	.	.	14	0	0
FLD CHLORINE (TOTAL)	.	.	.	14	0	0
FLD PH	8	8	0	14	14	0
FLD TEMPERATURE	8	8	0	15	15	0
*TOTAL SCAN CHEMISTRY (FLD)	16	16	0	71	29	0
CHEMISTRY (LAB)						
ALKALINITY	9	9	0	17	17	0
CALCIUM	9	9	0	17	17	0
CYANIDE	9	0	0	.	.	.
CHLORIDE	9	9	0	17	17	0
COLOUR	9	8	0	17	4	10
CONDUCTIVITY	9	9	0	17	17	0
DISS ORG CARBON	9	9	0	17	17	0
FLUORIDE	9	9	0	17	17	0
HARDNESS	9	9	0	17	17	0
IONCAL	9	9	0	17	17	0
LANGELIERS INDEX	9	9	0	17	17	0
MAGNESIUM	9	9	0	17	17	0
SODIUM	9	9	0	17	17	0
AMMONIUM TOTAL	9	9	0	17	2	2
NITRITE	9	3	6	17	7	7
TOTAL NITRATES	9	0	5	17	17	0
NITROGEN TOT KJELD	9	9	0	17	14	3
PH	9	9	0	17	17	0
PHOSPHORUS FIL REACT	9	7	1	.	.	.
PHOSPHORUS TOTAL	9	6	3	.	.	.
SULPHATE	9	9	0	17	17	0
TURBIDITY	9	9	0	17	16	1
*TOTAL SCAN CHEMISTRY (LAB)	198	168	15	323	281	23

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
METALS						
SILVER	9	0	0	17	0	5
ALUMINUM	9	9	0	17	17	0
ARSENIC	9	0	6	17	0	12
BARIUM	9	9	0	17	17	0
BORON	9	6	3	17	8	9
BERYLLIUM	9	0	3	17	0	1
CADMIUM	9	0	0	17	0	7
COBALT	9	0	7	17	0	12
CHROMIUM	9	0	6	17	1	10
COPPER	9	0	0	17	17	0
IRON	9	9	0	17	1	16
MERCURY	9	0	0	-	-	-
MANGANESE	9	9	0	17	17	0
MOLYBDENUM	9	9	0	17	2	15
NICKEL	9	0	1	17	9	3
LEAD	9	0	1	17	17	0
ANTIMONY	9	0	9	17	6	10
SELENIUM	9	0	0	17	0	11
STRONTIUM	9	9	0	17	17	0
TITANIUM	9	9	0	17	17	0
THALLIUM	9	0	0	17	0	0
URANIUM	9	0	0	17	0	17
VANADIUM	9	0	9	17	0	14
ZINC	9	7	2	17	17	0
*TOTAL SCAN METALS	216	76	47	391	163	142
*TOTAL GROUP INORGANIC & PHYSICAL	430	260	62	785	473	165
CHLOROAROMATICS						
HEXACHLOROBUTADIENE	9	0	0	7	0	0
123 TRICHLOROBENZENE	9	0	0	7	0	0
1234 T-CHLOROBENZENE	9	0	0	7	0	0
1235 T-CHLOROBENZENE	9	0	0	7	0	0
124 TRICHLOROBENZENE	9	0	0	7	0	0
1245 T-CHLOROBENZENE	9	0	0	7	0	0
135 TRICHLOROBENZENE	9	0	0	7	0	0
HCB	9	0	0	7	0	0
HEXACHLOROETHANE	9	0	0	7	0	0
OCTACHLOROSTYRENE	9	0	0	7	0	0
PENTACHLOROBENZENE	9	0	0	7	0	0
236 TRICHLOROTOLUENE	9	0	0	7	0	0
245 TRICHLOROTOLUENE	9	0	0	7	0	0
26A TRICHLOROTOLUENE	9	0	0	7	0	0
*TOTAL SCAN CHLOROAROMATICS	126	0	0	98	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
CHLOROPHENOLS						
234 TRICHLOROPHENOL	2	0	0	.	.	.
2345 T-CHLOROPHENOL	2	0	0	.	.	.
2356 T-CHLOROPHENOL	2	0	0	.	.	.
245-TRICHLOROPHENOL	2	0	0	.	.	.
246-TRICHLOROPHENOL	2	0	0	.	.	.
PENTACHLOROPHENOL	2	0	0	.	.	.
*TOTAL SCAN CHLOROPHENOLS	12	0	0	0	0	0
PAH						
PHENANTHRENE	8	0	0	.	.	.
ANTHRACENE	7	0	0	.	.	.
FLUORANTHENE	8	0	0	.	.	.
PYRENE	8	0	0	.	.	.
BENZO(A)ANTHRACENE	8	0	0	.	.	.
CHRYSENE	8	0	0	.	.	.
DIMETH. BENZ(A)ANTHR	7	0	0	.	.	.
BENZO(E) PYRENE	8	0	0	.	.	.
BENZO(B) FLUORANTHEN	8	0	0	.	.	.
PERYLENE	8	0	0	.	.	.
BENZO(K) FLUORANTHEN	8	0	0	.	.	.
BENZO(A) PYRENE	8	0	0	.	.	.
BENZO(G,H,I) PERYLEN	8	0	0	.	.	.
DIBENZO(A,H) ANTHRAC	8	0	0	.	.	.
INDENO(1,2,3-C,D) PY	8	0	0	.	.	.
BENZO(B) CHRYSENE	8	0	0	.	.	.
CORONENE	8	0	0	.	.	.
*TOTAL SCAN PAH	134	0	0	0	0	0
PESTICIDES & PCB						
ALDRIN	9	0	0	7	0	0
ALPHA BHC	9	0	0	7	0	0
BETA BHC	9	0	0	7	0	0
LINDANE	9	0	0	7	0	0
ALPHA CHLORDANE	9	0	0	7	0	0
GAMMA CHLORDANE	9	0	0	7	0	0
DIELDRIN	9	0	0	7	0	0
METHOXYCHLOR	9	0	0	7	0	0
ENDOSULFAN 1	9	0	0	7	0	0
ENDOSULFAN II	9	0	0	7	0	0
ENDRIN	9	0	0	7	0	0
ENDOSULFAN SULPHATE	9	0	0	7	0	0
HEPTACHLOR EPOXIDE	9	0	0	7	0	0
HEPTACHLOR	9	0	0	7	0	0
MIREX	9	0	0	7	0	0
OXYCHLORDANE	9	0	0	7	0	0
OPDDT	9	0	0	7	0	0
PCB	9	0	0	7	0	0
DDD	9	0	0	7	0	0
PPDDE	9	0	0	7	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
PPDDT	9	0	0	7	0	0
AMETRINE	9	0	0	.	.	.
ATRAZINE	9	0	0	.	.	.
ATRATONE	9	0	0	.	.	.
CYANAZINE (BLADEX)	9	0	0	.	.	.
DESETHYLATRAZINE	9	0	0	.	.	.
D-ETHYL SIMAZINE	8	0	0	.	.	.
PROMETONE	9	0	0	.	.	.
PROPAZINE	9	0	0	.	.	.
PROMETRYNE	9	0	0	.	.	.
METRIBUZIN (SENCOR)	9	0	0	.	.	.
SIMAZINE	9	0	0	.	.	.
ALACHLOR (LASSO)	9	0	0	.	.	.
METOLACHLOR	9	0	0	.	.	.
HEXACLCYCLOPENTADIEN	2	0	0	1	0	0
*TOTAL SCAN PESTICIDES & PCB	307	0	0	148	0	0
PHENOLICS						
PHENOLICS	9	0	4	.	.	.
*TOTAL SCAN PHENOLICS	9	0	4	0	0	0
SPECIFIC PESTICIDES						
TOXAPHENE	9	0	0	7	0	0
2,4,5-T	2	0	0	.	.	.
2,4-D	2	0	0	.	.	.
2,4-DB	2	0	0	.	.	.
2,4 D PROPIONIC ACID	2	0	0	.	.	.
DICAMBA	2	0	0	.	.	.
PICHLORAM	0	0	0	.	.	.
SILVEX	2	0	0	.	.	.
DIAZINON	2	0	0	.	.	.
DICHLOROVOS	2	0	0	.	.	.
CHLORPYRIFOS	2	0	0	.	.	.
ETHION	2	0	0	.	.	.
AZINPHOS-METHYL	0	0	0	.	.	.
MALATHION	2	0	0	.	.	.
MEVINPHOS	2	0	0	.	.	.
METHYL PARATHION	2	0	0	.	.	.
METHYLTRITHION	2	0	0	.	.	.
PARATHION	2	0	0	.	.	.
PHORATE	1	0	0	.	.	.
RELDAN	2	0	0	.	.	.
RONNEL	2	0	0	.	.	.
AMINOCARB	0	0	0	.	.	.
BENONYL	0	0	0	.	.	.
BUX	0	0	0	.	.	.
CARBOFURAN	2	0	0	.	.	.
CICP	2	0	0	.	.	.
DIALLATE	2	0	0	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
EPTAM	2	0	0	.	.	.
IPC	2	0	0	.	.	.
PROPOXUR	2	0	0	.	.	.
CARBARYL	2	0	0	.	.	.
BUTYLATE	2	0	0	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES	60	0	0	7	0	0
VOLATILES						
BENZENE	9	0	1	9	1	6
TOLUENE	9	0	0	9	0	0
ETHYLBENZENE	9	0	5	9	0	6
P-XYLENE	9	0	0	9	0	0
M-XYLENE	9	0	0	9	0	0
O-XYLENE	9	0	0	9	0	0
STYRENE	9	0	6	9	0	6
1,1 DICHLOROETHYLENE	9	0	0	9	0	0
METHYLENE CHLORIDE	9	0	0	9	0	0
T1,2DICHLOROETHYLENE	9	0	0	9	0	0
1,1 DICHLOROETHANE	9	0	0	9	0	0
CHLOROFORM	9	0	0	9	8	1
111, TRICHLOROETHANE	9	0	0	9	0	7
1,2 DICHLOROETHANE	9	0	0	9	0	2
CARBON TETRACHLORIDE	9	0	0	9	0	0
1,2 DICHLOROPROPANE	9	0	0	9	0	2
TRICHLOROETHYLENE	9	0	0	9	0	8
DICHLOROBROMOMETHANE	9	0	0	9	8	1
112 TRICHLOROETHANE	9	0	0	9	0	0
CHLORODIBROMOMETHANE	9	0	0	9	7	1
T-CHLOROETHYLENE	9	0	0	9	0	0
BROMOFORM	9	0	0	9	4	3
1122 T-CHLOROETHANE	9	0	0	9	0	0
CHLOROBENZENE	9	0	0	9	0	0
1,4 DICHLOROBENZENE	9	0	0	9	0	0
1,3 DICHLOROBENZENE	9	0	0	9	0	0
1,2 DICHLOROBENZENE	9	0	0	9	0	0
ETHLYENE DIBROMIDE	9	0	0	9	0	0
TOTL TRIHALOMETHANES	9	0	0	9	7	1
*TOTAL SCAN VOLATILES	261	0	12	261	35	44
*TOTAL GROUP ORGANIC	909	0	16	514	35	44

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
BACTERIOLOGICAL						
FECAL COLIFORM MF	9	0	0	.	.	.
STANDRD PLATE CNT MF	.	.	.	9	5	0
TOTAL COLIFORM MF	9	0	0	.	.	.
T COLIFORM BCKGRD MF	9	1	0	.	.	.
*TOTAL GROUP BACTERIOLOGICAL	27	1	0	9	5	0
CHEMISTRY (FLD)						
FLD CHLORINE (COMB)	.	.	.	17	10	0
FLD CHLORINE FREE	.	.	.	17	17	0
FLD CHLORINE (TOTAL)	.	.	.	17	17	0
FLD PH	9	9	0	17	17	0
FLD TEMPERATURE	9	9	0	17	17	0
*TOTAL SCAN CHEMISTRY (FLD)	18	18	0	85	78	0
CHEMISTRY (LAB)						
ALKALINITY	9	9	0	17	17	0
CALCIUM	9	9	0	17	17	0
CYANIDE	9	0	0	.	.	.
CHLORIDE	9	9	0	17	17	0
COLOUR	9	2	7	17	1	12
CONDUCTIVITY	9	9	0	17	17	0
DISS ORG CARBON	9	9	0	17	9	8
FLUORIDE	9	9	0	17	17	0
HARDNESS	9	9	0	17	17	0
IONCAL	9	9	0	17	17	0
LANGELIERS INDEX	9	9	0	17	17	0
MAGNESIUM	9	9	0	17	17	0
SODIUM	9	9	0	17	17	0
AMMONIUM TOTAL	9	3	2	17	0	3
NITRITE	9	9	0	17	6	8
TOTAL NITRATES	9	9	0	17	17	0
NITROGEN TOT KJELD	9	3	6	17	5	11
PH	9	9	0	17	17	0
PHOSPHORUS FIL REACT	9	0	4	.	.	.
PHOSPHORUS TOTAL	9	2	3	.	.	.
SULPHATE	9	9	0	17	17	0
TURBIDITY	9	9	0	17	12	5
*TOTAL SCAN CHEMISTRY (LAB)	198	154	22	323	254	47

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
METALS						
SILVER	9	0	0	17	0	0
ALUMINUM	9	9	0	17	17	0
ARSENIC	9	0	9	17	0	14
BARIUM	9	9	0	17	17	0
BORON	9	9	0	17	10	7
BERYLLIUM	9	0	3	17	0	4
CADMIUM	9	0	0	17	0	5
COBALT	9	0	7	17	0	9
CHROMIUM	9	3	3	17	1	11
COPPER	9	0	2	17	17	0
IRON	9	9	0	17	2	8
MERCURY	9	1	1	.	.	.
MANGANESE	9	9	0	17	17	0
MOLYBDENUM	9	9	0	17	0	17
NICKEL	9	2	1	17	1	5
LEAD	9	0	1	17	4	13
ANTIMONY	9	1	8	17	1	16
SELENIUM	9	0	0	17	0	3
STRONTIUM	9	9	0	17	17	0
TITANIUM	9	9	0	17	17	0
THALLIUM	9	0	0	17	0	0
URANIUM	9	9	0	17	6	11
VANADIUM	9	0	7	17	1	16
ZINC	9	7	2	17	17	0
*TOTAL SCAN METALS	216	95	44	391	145	139
*TOTAL GROUP INORGANIC & PHYSICAL	432	267	66	799	477	186
CHLOROAROMATICS						
HEXACHLOROBUTADIENE	9	0	0	9	0	0
123 TRICHLOROBENZENE	9	0	0	9	0	0
1234 T-CHLOROBENZENE	9	0	0	9	0	0
1235 T-CHLOROBENZENE	9	0	0	9	0	0
124 TRICHLOROBENZENE	9	0	0	9	0	0
1245 T-CHLOROBENZENE	9	0	0	9	0	0
135 TRICHLOROBENZENE	9	0	0	9	0	0
HCB	9	0	0	9	0	0
HEXACHLOROETHANE	9	0	0	9	0	0
OCTACHLOROSTYRENE	9	0	0	9	0	0
PENTACHLOROBENZENE	9	0	0	9	0	0
236 TRICHLOROTOLUENE	9	0	0	9	0	0
245 TRICHLOROTOLUENE	9	0	0	9	0	0
26A TRICHLOROTOLUENE	9	0	0	9	0	0
*TOTAL SCAN CHLOROAROMATICS	126	0	0	126	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
CHLOROPHENOLS						
234 TRICHLOROPHENOL	2	0	0	.	.	.
2345 T-CHLOROPHENOL	2	0	0	.	.	.
2356 T-CHLOROPHENOL	2	0	0	.	.	.
245-TRICHLOROPHENOL	2	0	0	.	.	.
246-TRICHLOROPHENOL	2	0	0	.	.	.
PENTACHLOROPHENOL	2	0	0	.	.	.
*TOTAL SCAN CHLOROPHENOLS	12	0	0	0	0	0
PAH						
PHENANTHRENE	8	0	0	1	0	0
ANTHRACENE	7	0	0	1	0	0
FLUORANTHENE	8	0	0	1	0	0
PYRENE	8	0	0	1	0	0
BENZO(A)ANTHRACENE	8	0	0	1	0	0
CHRYSENE	8	0	0	1	0	0
DIMETH. BENZ(A)ANTHR	7	0	0	1	0	0
BENZO(E) PYRENE	8	0	0	1	0	0
BENZO(B) FLUORANTHEN	8	0	0	1	0	0
PERYLENE	8	0	0	1	0	0
BENZO(K) FLUORANTHEN	8	0	0	1	0	0
BENZO(A) PYRENE	8	0	0	1	0	0
BENZO(G,H,I) PERYLEN	8	0	0	1	0	0
DIBENZO(A,H) ANTHRAC	8	0	0	1	0	0
INDENO(1,2,3-C,D) PY	8	0	0	1	0	0
BENZO(B) CHRYSENE	8	0	0	1	0	0
CORONENE	8	0	0	1	0	0
*TOTAL SCAN PAH	134	0	0	17	0	0
PESTICIDES & PCB						
ALDRIN	9	0	0	9	0	0
ALPHA BHC	9	0	0	9	0	0
BETA BHC	9	0	0	9	0	0
LINDANE	9	0	0	9	0	0
ALPHA CHLORDANE	9	0	0	9	0	0
GAMMA CHLORDANE	9	0	0	9	0	0
DIELDRIN	9	0	0	9	0	0
METHOXYCHLOR	9	0	0	9	0	0
ENDOSULFAN 1	9	0	0	9	0	0
ENDOSULFAN II	9	0	0	9	0	0
ENDRIN	9	0	0	9	0	0
ENDOSULFAN SULPHATE	9	0	0	9	0	0
HEPTACHLOR EPOXIDE	9	0	0	9	0	0
HEPTACHLOR	9	0	0	9	0	0
MIREX	9	0	0	9	0	0
OXYCHLORDANE	9	0	0	9	0	0
OPDDT	9	0	0	9	0	0
PCB	9	0	0	9	0	0
DDD	9	0	0	9	0	0
PPDDE	9	0	0	9	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
PPDDT	9	0	0	9	0	0
AMETRINE	8	0	0	.	.	.
ATRAZINE	8	0	6	.	.	.
ATRATONE	8	0	0	.	.	.
CYANAZINE (BLADEX)	8	0	0	.	.	.
DESETHYLATRAZINE	8	0	0	.	.	.
D-ETHYL SIMAZINE	7	0	0	.	.	.
PROMETONE	8	0	0	.	.	.
PROPAZINE	8	0	0	.	.	.
PROMETRYNE	8	0	0	.	.	.
METRIBUZIN (SENCOR)	8	0	0	.	.	.
SIMAZINE	8	0	0	.	.	.
ALACHLOR (LASSO)	8	0	0	.	.	.
METOLACHLOR	8	0	0	.	.	.
HEXACLCYCLOPENTADIEN	2	0	0	2	0	0
*TOTAL SCAN PESTICIDES & PCB	294	0	6	191	0	0
PHENOLICS						
PHENOLICS	9	1	5	.	.	.
*TOTAL SCAN PHENOLICS	9	1	5	0	0	0
SPECIFIC PESTICIDES						
TOXAPHENE	9	0	0	9	0	0
2,4,5-T	2	0	0	.	.	.
2,4-D	2	0	0	.	.	.
2,4-DB	2	0	0	.	.	.
2,4 D PROPIONIC ACID	2	0	0	.	.	.
DICAMBA	2	0	0	.	.	.
PICHLORAM	0	0	0	.	.	.
SILVEX	2	0	0	.	.	.
DIAZINON	2	0	0	.	.	.
DICHLOROVOS	2	0	0	.	.	.
CHLORPYRIFOS	2	0	0	.	.	.
ETHION	2	0	0	.	.	.
AZINPHOS-METHYL	1	0	0	.	.	.
MALATHION	2	0	0	.	.	.
MEVINPHOS	2	0	0	.	.	.
METHYL PARATHION	2	0	0	.	.	.
METHYLTRITHION	2	0	0	.	.	.
PARATHION	2	0	0	.	.	.
PHORATE	1	0	0	.	.	.
RELDAN	2	0	0	.	.	.
RONNEL	2	0	0	.	.	.
AMINOCARB	0	0	0	.	.	.
BENOMYL	0	0	0	.	.	.
BUX	0	0	0	.	.	.
CARBOFURAN	2	0	0	.	.	.
CICP	2	0	0	.	.	.
DIALLATE	2	0	0	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE)
SUMMARY TABLE OF RESULTS (1990)

SCAN PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE
EPTAM	2	0	0	.	.	.
IPC	2	0	0	.	.	.
PROPOXUR	2	0	0	.	.	.
CARBARYL	2	0	0	.	.	.
BUTYLATE	2	0	0	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES	61	0	0	9	0	0
VOLATILES						
BENZENE	9	0	0	9	0	0
TOLUENE	9	0	0	9	0	0
ETHYLBENZENE	9	0	0	9	0	3
P-XYLENE	9	0	0	9	0	0
M-XYLENE	9	0	0	9	0	0
O-XYLENE	9	0	0	9	0	0
STYRENE	9	0	0	9	0	3
1,1 DICHLOROETHYLENE	9	0	0	9	0	0
METHYLENE CHLORIDE	9	0	0	9	0	0
T1,2DICHLOROETHYLENE	9	0	0	9	0	0
1,1 DICHLOROETHANE	9	0	0	9	0	0
CHLOROFORM	9	9	0	9	4	5
111, TRICHLOROETHANE	9	9	0	9	0	0
1,2 DICHLOROETHANE	9	0	0	9	0	0
CARBON TETRACHLORIDE	9	0	0	9	0	0
1,2 DICHLOROPROPANE	9	7	1	9	0	0
TRICHLOROETHYLENE	9	0	0	9	0	0
DICHLOROBROMOMETHANE	9	0	0	9	5	4
112 TRICHLOROETHANE	9	0	0	9	0	0
CHLORODIBROMOMETHANE	9	0	0	9	4	4
T-CHLOROETHYLENE	9	0	6	9	0	0
BROMOFORM	9	0	0	9	1	3
1122 T-CHLORDETHANE	9	0	0	9	0	0
CHLOROBENZENE	9	0	0	9	0	0
1,4 DICHLOROBENZENE	9	0	0	9	0	0
1,3 DICHLOROBENZENE	9	0	0	9	0	0
1,2 DICHLOROBENZENE	9	0	0	9	0	0
ETHLYENE DIBROMIDE	9	0	0	9	0	0
TOTL TRIHALOMETHANES	9	8	0	9	4	3
*TOTAL SCAN VOLATILES	261	33	7	261	18	25
*TOTAL GROUP ORGANIC	897	34	18	604	18	25

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
2. Interim Maximum Acceptable Concentration (IMAC)
3. Aesthetic Objective (AO)
3*. AO for Total Xylenes
4. Recommended Operational Guideline

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
4T. EPA Ambient Water Quality Criteria for Total PAH

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurement Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant

UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminate Interference
XP	Positive After X Number Of Hours
T#	(T06) Result Taken After # Hours

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY (WELL NO. 4) 1990

RAW WELL 4 RESERVOIR

BACTERIOLOGICAL

FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 0 (A1)
APR	BDL	.		
MAY	0	.		
JUN	0	.		
JUL	0	.		
AUG	0	.		
SEP	0	.		
OCT	0	.		
NOV	0	.		
DEC	0	.		
STANDRD PLATE CNT MF (COUNT/ML)			DET'N LIMIT = 0	GUIDELINE = 500/ML (A3)
APR	.	48		
MAY	.	1300		
JUN	.	63		
JUL	.	1340		
AUG	.	1540		
SEP	.	2400 >		
OCT	.	24		
NOV	.	2400 >		
DEC	.	20		
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 5/100ML(A1)
APR	BDL	.		
MAY	BDL	.		
JUN	BDL	.		
JUL	BDL	.		
AUG	0	.		
SEP	0	.		
OCT	0	.		
NOV	0	.		
DEC	1	.		
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	8	.		
MAY	BDL	.		
JUN	BDL	.		
JUL	BDL	.		
AUG	0	.		
SEP	1	.		
OCT	5	.		
NOV	0	.		
DEC	13	.		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
CHEMISTRY (FLO)		
FLD CHLORINE (COMB) (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
AUG	.	.300
NOV	.	.000
DEC	.	.000
FLD CHLORINE FREE (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
APR	.	.100
MAY	.	.300
JUN	.	.300
AUG	.	.300
OCT	.	.350
NOV	.	.300
DEC	.	.350
FLD CHLORINE (TOTAL) (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
APR	.	.100
MAY	.	.300
JUN	.	.300
AUG	.	.600
OCT	.	.350
NOV	.	.300
DEC	.	.350
FLD PH (DIMNSLESS)	**DET'N LIMIT = N/A**	**GUIDELINE = 6.5-8.5(A4)**
APR	7.400	7.400
MAY	7.400	7.400
JUN	7.400	7.400
JUL	7.400	7.400
AUG	7.400	7.400
OCT	7.400	7.400
NOV	7.400	7.400
DEC	7.400	7.400
FLD TEMPERATURE (DEG.C)	**DET'N LIMIT = N/A**	**GUIDELINE = 15 (A3)**
APR	5.000	5.500
MAY	7.000	7.000
JUN	8.000	8.000
JUL	9.000	10.000
AUG	10.000	10.000
OCT	10.000	10.000
NOV	9.500	9.000
DEC	8.000	8.000

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
CHEMISTRY (LAB)				
ALKALINITY (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 30-500 (A4)
APR	194.000	194.800		
MAY	195.900	206.100		
JUN	202.300	207.400		
JUL	207.600	211.800		
AUG	203.000	205.100		
SEP	202.100	206.700		
OCT	202.000	205.600		
NOV	201.100	206.800		
DEC	210.400	204.200		
CALCIUM (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 100 (F2)
APR	84.400	84.600		
MAY	84.100	86.200		
JUN	83.800	87.300		
JUL	89.000	92.600		
AUG	83.400	90.400		
SEP	82.200	87.800		
OCT	83.400	87.800		
NOV	84.600	88.300		
DEC	94.700	91.100		
CHLORIDE (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 250 (A3)
APR	14.200	45.400		
MAY	15.100	58.300		
JUN	16.200	58.900		
JUL	18.100	56.800		
AUG	15.700	59.600		
SEP	15.200	64.500		
OCT	13.800	60.900		
NOV	15.800	55.800		
DEC	23.000	44.900		
COLOUR (HZU)			DET'N LIMIT = 0.5	GUIDELINE = 5 (A3)
APR	6.000	4.500		
MAY	5.500	3.500		
JUN	6.500	4.500		
JUL	5.000	3.500		
AUG	4.500	3.000		
SEP	6.000	3.000		
OCT	5.500	3.000		
NOV	6.000	3.500		
DEC	5.000	2.500		
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1.	GUIDELINE = 400 (F2)
APR	524	405		
MAY	532	699		
JUN	534	689		
JUL	537	690		
AUG	524	689		
SEP	523	706		
OCT	524	697		
NOV	530	682		
DEC	579	658		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
DISS ORG CARBON (MG/L)			DET'N LIMIT = .100	GUIDELINE = 5.0 (A3)
APR	1.400	1.600		
MAY	1.500	1.600		
JUN	1.700	2.000		
JUL	1.300	1.100		
AUG	1.300	1.100		
SEP	1.200	.900		
OCT	.800	.900		
NOV	1.200	1.000		
DEC	1.100	1.000		
FLUORIDE (MG/L)			DET'N LIMIT = 0.01	GUIDELINE = 2.4 (A1)
APR	.060	.920		
MAY	.060	1.000		
JUN	.080	1.000		
JUL	.080	.980		
AUG	.100	1.000		
SEP	.080	1.040		
OCT	.080	1.100		
NOV	.100	1.000		
DEC	.080	1.120		
HARDNESS (MG/L)			DET'N LIMIT = 0.5	GUIDELINE = 80-100 (A4)
APR	263.000	266.000		
MAY	263.400	271.700		
JUN	263.800	275.700		
JUL	276.000	292.000		
AUG	262.300	287.400		
SEP	256.000	276.000		
OCT	261.000	278.000		
NOV	263.700	278.100		
DEC	293.200	288.000		
IONCAL (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
APR	.972	.247		
MAY	2.036	3.148		
JUN	2.846	1.804		
JUL	.945	.403		
AUG	.903	2.834		
SEP	1.219	.466		
OCT	1.285	.406		
NOV	.264	.826		
DEC	.051	2.350		
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
APR	1.121	1.115		
MAY	1.103	1.083		
JUN	.965	.912		
JUL	1.262	1.237		
AUG	1.155	1.102		
SEP	1.067	1.092		
OCT	1.123	1.120		
NOV	1.207	1.266		
DEC	1.171	1.125		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
MAGNESIUM (MG/L)			DET'N LIMIT = 0.1	GUIDELINE = 30 (F2)
APR	12.800	13.300		
MAY	13.000	13.700		
JUN	13.250	14.000		
JUL	13.000	14.700		
AUG	13.150	15.000		
SEP	12.300	13.700		
OCT	12.700	14.300		
NOV	12.750	14.000		
DEC	13.800	14.650		
SODIUM (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 200 (A4)
APR	7.600	26.400		
MAY	7.700	33.300		
JUN	8.000	33.200		
JUL	9.600	30.000		
AUG	10.900	35.400		
SEP	11.400	41.000		
OCT	11.600	37.600		
NOV	9.700	33.400		
DEC	8.200	26.400		
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = 0.05 (F2)
APR	.068	.012		
MAY	.068	BDL		
JUN	.068	BDL		
JUL	.054	BDL		
AUG	.080	BDL		
SEP	.042	BDL		
OCT	.082	BDL		
NOV	.042	BDL		
DEC	.042	BDL		
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1 (A1)
APR	.011	.002 <T		
MAY	.017	.001 <T		
JUN	.006	.002 <T		
JUL	.022	.010		
AUG	.009	BDL		
SEP	.026	.004 <T		
OCT	.011	BDL		
NOV	.043	BDL		
DEC	.013	.005		
TOTAL NITRATES (MG/L)			DET'N LIMIT = 0.005	GUIDELINE = 10 (A1)
APR	1.920	3.000		
MAY	1.830	3.390		
JUN	1.550	3.190		
JUL	1.810	3.700		
AUG	1.720	3.550		
SEP	1.870	3.660		
OCT	1.670	3.680		
NOV	1.800	3.790		
DEC	1.590	3.970		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = 0.02	GUIDELINE = N/A
APR	.240	.220		
MAY	.270	.140		
JUN	.220	.170		
JUL	.260	.130		
AUG	.210	.140		
SEP	.200	.110		
OCT	.220	.110		
NOV	.190	.110		
DEC	.110	.090 <T		
PH (DIMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
APR	8.370	8.350		
MAY	8.350	8.310		
JUN	8.200	8.130		
JUL	8.460	8.420		
AUG	8.390	8.310		
SEP	8.310	8.310		
OCT	8.360	8.340		
NOV	8.440	8.480		
DEC	8.340	8.330		
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = 0.0005	GUIDELINE = N/A
APR	.000 <T	.007		
MAY	.000	.001		
JUN	.001 <T	.004		
JUL	.000 <T	.005		
AUG	.001 <T	.004		
SEP	BDL	BDL		
OCT	.001 <T	.000 <T		
NOV	.001 <T	.003		
DEC	.019	.001 <T		
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = .40 (F2)
APR	.007 <T	.012		
MAY	.004 <T	.007 <T		
JUN	BDL	.003 <T		
JUL	.002 <T	.006 <T		
AUG	.005 <T	.014		
SEP	.002 <T	.003 <T		
OCT	BDL	BDL		
NOV	.065	.066		
DEC	.031	.010		
SULPHATE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 500 (A3)
APR	59.470	52.430		
MAY	59.890	52.200		
JUN	56.350	50.100		
JUL	52.150	51.050		
AUG	50.330	50.400		
SEP	51.800	50.200		
OCT	52.710	51.550		
NOV	53.570	52.310		
DEC	60.290	53.260		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
TURBIDITY (FTU)		DET'N LIMIT = 0.05 GUIDELINE = 1 (A1)
APR	1.630	.220 <T
MAY	1.070	.210
JUN	1.050	.420
JUL	.850	.420
AUG	1.100	.590
SEP	.760	.200
OCT	.840	.310
NOV	.780	.400
DEC	1.590	.850

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
METALS				
ALUMINUM (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 100 (A4)
APR	6.500	7.100		
MAY	25.000	25.000		
JUN	15.000	15.000		
JUL	4.500	3.300		
AUG	5.100	5.100		
SEP	6.400	5.800		
OCT	1.500	1.500		
NOV	1.800	1.600		
DEC	2.400	2.200		
ARSENIC (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 25 (A1)
APR	.300 <T	.430 <T		
MAY	.180 <T	.200 <T		
JUN	.140 <T	BDL		
JUL	BDL	.420 <T		
AUG	.340 <T	.310 <T		
SEP	.290 <T	BDL		
OCT	.330 <T	.440 <T		
NOV	BDL	.220 <T		
DEC	.180 <T	BDL		
BARIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 1000 (A2)
APR	61.000	50.000		
MAY	61.000	51.000		
JUN	61.000	50.000		
JUL	62.000	48.000		
AUG	60.000	50.000		
SEP	61.000	51.000		
OCT	64.000	54.000		
NOV	59.000	51.000		
DEC	59.000	50.000		
BORON (UG/L)			DET'N LIMIT = 2.00	GUIDELINE = 5000 (A1)
APR	21.000	35.000		
MAY	80.000	83.000		
JUN	16.000 <T	18.000 <T		
JUL	24.000	16.000 <T		
AUG	47.000	49.000		
SEP	44.000	32.000		
OCT	27.000	28.000		
NOV	19.000 <T	17.000 <T		
DEC	13.000 <T	15.000 <T		
BERYLLIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 6800 (D4)
APR	BDL	BDL		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	BDL	BDL		
AUG	BDL	.070 <T		
SEP	.070 <T	.070 <T		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
CADMIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	BDL	BDL		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	.070 <T		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		
COBALT (UG/L)			DET'N LIMIT = 0.02	GUIDELINE = N/A
APR	BDL	BDL		
MAY	.090 <T	.150 <T		
JUN	.080 <T	.080 <T		
JUL	.190 <T	.350 <T		
AUG	BDL	BDL		
SEP	.110 <T	.050 <T		
OCT	.050 <T	.030 <T		
NOV	.040 <T	.090 <T		
DEC	BDL	BDL		
CHROMIUM (UG/L)			DET'N LIMIT = 0.50	GUIDELINE = 50 (A1)
APR	.620 <T	3.100 <T		
MAY	3.800 <T	4.200 <T		
JUN	BDL	BDL		
JUL	2.400 <T	BDL		
AUG	4.400 <T	4.400 <T		
SEP	4.300 <T	2.500 <T		
OCT	7.200	7.000		
NOV	1.400 <T	BDL		
DEC	BDL	BDL		
COPPER (UG/L)			DET'N LIMIT = 0.50	GUIDELINE = 1000 (A3)
APR	.770 <T	.940 <T		
MAY	.740 <T	.990 <T		
JUN	1.200 <T	1.400 <T		
JUL	2.800 <T	1.200 <T		
AUG	.860 <T	1.100 <T		
SEP	1.100 <T	1.300 <T		
OCT	.800 <T	.950 <T		
NOV	.690 <T	1.100 <T		
DEC	.880 <T	1.000 <T		
IRON (UG/L)			DET'N LIMIT = 6.00	GUIDELINE = 300 (A3)
APR	170.000	65.000		
MAY	190.000	57.000 <T		
JUN	200.000	76.000		
JUL	200.000	66.000		
AUG	200.000	57.000 <T		
SEP	200.000	57.000 <T		
OCT	220.000	60.000 <T		
NOV	210.000	66.000		
DEC	220.000	93.000		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
MERCURY (UG/L)			DET'N LIMIT = 0.02	GUIDELINE = 1 (A1)
APR	BDL	BDL		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	.030 <T		
OCT	.110	BDL		
NOV	.100 <T	BDL		
DEC	BDL	.060 <T		
MANGANESE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 50 (A3)
APR	150.000	45.000		
MAY	160.000	39.000		
JUN	160.000	49.000		
JUL	150.000	46.000		
AUG	170.000	49.000		
SEP	180.000	49.000		
OCT	180.000	49.000		
NOV	170.000	48.000		
DEC	190.000	63.000		
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.420 <T	.310 <T		
MAY	.480 <T	.330 <T		
JUN	.430 <T	.360 <T		
JUL	.430 <T	.320 <T		
AUG	.490 <T	.350 <T		
SEP	.460 <T	.380 <T		
OCT	.590	.400 <T		
NOV	.510	.360 <T		
DEC	.550	.420 <T		
NICKEL (UG/L)			DET'N LIMIT = 0.20	GUIDELINE = 350 (D3)
APR	BDL	BDL		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	2.200	2.400		
AUG	BDL	.490 <T		
SEP	BDL	BDL		
OCT	2.100	2.300		
NOV	BDL	BDL		
DEC	BDL	BDL		
LEAD (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 10. (A1)
APR	BDL	.080 <T		
MAY	BDL	BDL		
JUN	BDL	.060 <T		
JUL	.120 <T	BDL		
AUG	BDL	.090 <T		
SEP	.060 <T	BDL		
OCT	BDL	.070 <T		
NOV	BDL	BDL		
DEC	.160 <T	.060 <T		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
ANTIMONY (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = 146 (04)
APR	.450 <T	.550
MAY	.300 <T	.400 <T
JUN	.400 <T	.380 <T
JUL	.230 <T	.420 <T
AUG	.370 <T	.340 <T
SEP	.310 <T	.340 <T
OCT	.330 <T	.470 <T
NOV	.370 <T	.330 <T
DEC	.610	.650
SELENIUM (UG/L)	DET'N LIMIT = 1.00	GUIDELINE = 10 (A1)
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	1.300 <T
JUL	BDL	1.200 <T
AUG	BDL	2.000 <T
SEP	BDL	1.600 <T
OCT	BDL	1.700 <T
NOV	BDL	1.400 <T
DEC	BDL	1.100 <T
STRONTIUM (UG/L)	DET'N LIMIT = 0.10	GUIDELINE = N/A
APR	180.000	200.000
MAY	190.000	210.000
JUN	190.000	210.000
JUL	180.000	190.000
AUG	170.000	200.000
SEP	190.000	200.000
OCT	190.000	210.000
NOV	180.000	210.000
DEC	220.000	210.000
TITANIUM (UG/L)	DET'N LIMIT = 0.50	GUIDELINE = N/A
APR	11.000	11.000
MAY	23.000	22.000
JUN	23.000	23.000
JUL	24.000	24.000
AUG	17.000	17.000
SEP	23.000	21.000
OCT	6.800	6.300
NOV	13.000	12.000
DEC	14.000	17.000
URANIUM (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = 100 (A1)
APR	.500 <T	.530
MAY	.560	.530
JUN	.520	.530
JUL	.460 <T	.410 <T
AUG	.520	.470 <T
SEP	.530	.460 <T
OCT	.480 <T	.450 <T
NOV	.490 <T	.460 <T
DEC	.540	.370 <T

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
VANADIUM (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.190 <T	.530
MAY	.090 <T	.130 <T
JUN	BDL	BDL
JUL	.100 <T	.230 <T
AUG	.080 <T	.110 <T
SEP	BDL	.080 <T
OCT	.110 <T	.270 <T
NOV	BDL	.120 <T
DEC	.200 <T	.190 <T
ZINC (UG/L)	DET'N LIMIT = 0.20	GUIDELINE = 5000 (A3)
APR	1.300 <T	1.100 <T
MAY	1.700 <T	1.900 <T
JUN	2.500	2.400
JUL	2.700	3.700
AUG	1.500 <T	1.400 <T
SEP	2.700	2.500
OCT	1.200 <T	1.400 <T
NOV	2.500	2.800
DEC	2.100	1.700 <T

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

RAW WELL 4 RESERVOIR

CHLOROAROMATICS

HEXACHLOROETHANE (NG/L) DET'N LIMIT = 1.000 GUIDELINE = 1900 (D4)

APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	!LA	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	2.000 <T

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
	PESTICIDES & PCB	
ATRAZINE (NG/L)		DET'N LIMIT = 50 GUIDELINE = 60000 (A2)
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	180.000 <T	BDL
DEC	BDL	BDL

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
PHENOLICS (UG/L	PHENOLICS)	DET'N LIMIT = .200 GUIDELINE = 2 (A4)
APR	.400 <T	BDL
MAY	.600 <T	BDL
JUN	.400 <T	BDL
JUL	.400 <T	.600 <T
AUG	BDL	BDL
SEP	BDL	BDL
OCT	.800 <T	1.000 <T
NOV	!BT	BDL
DEC	.600 <T	.800 <T

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR
VOLATILES		
BENZENE (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	.050 <T	BDL
MAY	.050 <T	1.500
JUN	BDL	2.100
JUL	BDL	1.250
AUG	BDL	1.550
SEP	BDL	1.700
OCT	BDL	.200 <T
NOV	BDL	.850
DEC	BDL	IEF
ETHYLBENZENE (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = 2.4 (A3)
APR	BDL	BDL
MAY	.150 <T	.200 <T
JUN	BDL	.100 <T
JUL	BDL	.100 <T
AUG	.150 <T	.100 <T
SEP	BDL	BDL
OCT	.100 <T	BDL
NOV	.100 <T	.100 <T
DEC	BDL	IEF
STYRENE (UG/L)	DET'N LIMIT = 0.05	GUIDELINE = 100 (D1)
APR	BDL	BDL
MAY	.250 <T	.350 <T
JUN	BDL	.180 <T
JUL	BDL	.100 <T
AUG	.250 <T	.050 <T
SEP	BDL	BDL
OCT	.150 <T	.050 <T
NOV	.100 <T	BDL
DEC	.050 <T	IEF
CHLOROFORM (UG/L)	DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
APR	.100 <T	1.300
MAY	.100 <T	6.100
JUN	.400 <T	2.900
JUL	.200 <T	8.300
AUG	BDL	5.900
SEP	BDL	1.800
OCT	BDL	2.000
NOV	BDL	6.500
DEC	BDL	IEF
111, TRICHLOROETHANE (UG/L)	DET'N LIMIT = 0.02	GUIDELINE = 200 (D1)
APR	BDL	BDL
MAY	BDL	.040 <T
JUN	BDL	.040 <T
JUL	BDL	BDL
AUG	BDL	.040 <T
SEP	BDL	.060 <T
OCT	BDL	.060 <T
NOV	BDL	.040 <T
DEC	BDL	IEF

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR		
1,2 DICHLOROETHANE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	BDL	.100 <T		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	BDL		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	!EF		
1,2 DICHLOROPROPANE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 5 (D1)
APR	BDL	.050 <T		
MAY	BDL	BDL		
JUN	BDL	.050 <T		
JUL	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	.100 <T		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	!EF		
TRICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 50 (A1)
APR	BDL	BDL		
MAY	BDL	.100 <T		
JUN	BDL	.200 <T		
JUL	BDL	.200 <T		
AUG	BDL	.200 <T		
SEP	BDL	.200 <T		
OCT	BDL	.200 <T		
NOV	BDL	.200 <T		
DEC	BDL	!EF		
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 350 (A1+)
APR	BDL	.550		
MAY	BDL	6.350		
JUN	BDL	2.500		
JUL	BDL	13.000		
AUG	BDL	12.450		
SEP	BDL	4.600		
OCT	BDL	4.150		
NOV	BDL	11.500		
DEC	BDL	!EF		
CHLORODIBROMOMETHANE (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
APR	BDL	.100 <T		
MAY	BDL	4.000		
JUN	BDL	1.300		
JUL	BDL	13.000		
AUG	BDL	16.800		
SEP	BDL	7.400		
OCT	BDL	5.600		
NOV	BDL	13.000		
DEC	BDL	!EF		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE WELL SUPPLY 1990

	RAW WELL 4	RESERVOIR	
BROMOFORM (UG/L)		DET'N LIMIT = 0.20	GUIDELINE = 350 (A1+)
APR	BDL	BDL	
MAY	BDL	.400	<T
JUN	BDL	.200	<T
JUL	BDL	2.000	
AUG	BDL	4.400	
SEP	BDL	3.800	
OCT	BDL	2.400	
NOV	BDL	3.400	
DEC	BDL	IEF	
ETHLYENE DIBROMIDE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 50 (D1)
APR	BDL	BDL	
MAY	BDL	BDL	
JUN	BDL	.200	<T
JUL	BDL	BDL	
AUG	BDL	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	IEF	
TOTAL TRIHALOMETHANES (UG/L)		DET'N LIMIT = 0.50	GUIDELINE = 350 (A1)
APR	BDL	1.950	<T
MAY	BDL	16.850	
JUN	BDL	6.900	
JUL	BDL	36.350	
AUG	BDL	39.500	
SEP	BDL	17.650	
OCT	BDL	14.100	
NOV	BDL	34.350	
DEC	BDL	IEF	

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

		STANDING	FREE FLOW	
BACTERIOLOGICAL				
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 0 (A1)
APR	BDL	.	.	
MAY	0	.	.	
JUN	BDL	.	.	
JUL	BDL	.	.	
AUG	BDL	.	.	
SEP	0	.	.	
OCT	0	.	.	
NOV	0	.	.	
DEC	0	.	.	
STANDRD PLATE CNT MF (COUNT/ML)			DET'N LIMIT = 0	GUIDELINE = 500/ML (A3)
APR	.	.	8 <=>	
MAY	.	.	2400 >	
JUN	.	.	1700	
JUL	.	.	2400 >	
AUG	.	.	2400 >	
OCT	.	.	2400 >	
NOV	.	.	320	
DEC	.	.	150	
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	BDL	.	.	
MAY	BDL	.	.	
JUN	4	.	.	
JUL	BDL	.	.	
AUG	BDL	.	.	
SEP	42	.	.	
OCT	BDL	.	.	
NOV	BDL	.	.	
DEC	BDL	.	.	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

	STANDING	FREE FLOW
CHEMISTRY (FLD)		
FLD CHLORINE (COMB) (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
APR	.	.000
MAY	.	.000
JUN	.000	.000
JUL	.000	.000
AUG	.000	.000
OCT	.000	.000
NOV	.000	.000
DEC	.000	.000
FLD CHLORINE FREE (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
APR	.	.000
MAY	.	.000
JUN	.000	.000
JUL	.000	.000
AUG	.000	.000
OCT	.000	.000
NOV	.000	.000
DEC	.000	.000
FLD CHLORINE (TOTAL) (MG/L)	**DET'N LIMIT = 0**	**GUIDELINE = N/A**
APR	.	.000
MAY	.	.000
JUN	.000	.000
JUL	.000	.000
AUG	.000	.000
OCT	.000	.000
NOV	.000	.000
DEC	.000	.000
FLD PH (DMNSLESS)	**DET'N LIMIT = N/A**	**GUIDELINE = 6.5-8.5(A4)**
APR 7.300	.	7.500
MAY 7.400	7.300	7.600
JUN 7.400	7.600	7.400
JUL 7.400	7.600	7.400
AUG 7.400	7.400	.
SEP 7.400	.	.
OCT 7.400	7.400	7.400
NOV 7.400	7.400	7.400
DEC .	7.600	7.600
FLD TEMPERATURE (DEG.C)	**DET'N LIMIT = N/A**	**GUIDELINE = 15 (A3)**
APR 8.500	.	6.000
MAY 9.000	15.000	9.000
JUN 8.500	17.000	11.000
JUL 9.000	20.000	13.000
AUG 9.000	22.000	15.000
SEP 9.000	.	.
OCT 9.000	21.000	14.000
NOV 9.000	21.000	16.000
DEC .	20.000	16.000

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) — SITE 1

	STANDING	FREE FLOW	
CHEMISTRY (LAB)			
ALKALINITY (MG/L)		DET'N LIMIT = 0.2	GUIDELINE = 30-500 (A4)
APR 221.200	.	212.000	
MAY 180.000	207.800	207.900	
JUN 216.600	211.600	208.100	
JUL 218.400	213.400	209.700	
AUG 217.300	211.200	208.700	
SEP 214.200	211.100	207.500	
OCT 206.700	210.200	211.600	
NOV 213.300	211.100	210.600	
DEC 219.200	211.700	210.300	
CALCIUM (MG/L)		DET'N LIMIT = 0.2	GUIDELINE = 100 (F2)
APR 89.400	.	84.400	
MAY 79.800	86.000	84.900	
JUN 86.900	84.900	85.100	
JUL 90.600	94.000	94.000	
AUG 89.000	89.900	88.100	
SEP 87.800	90.900	84.600	
OCT 88.400	89.200	88.400	
NOV 83.900	88.100	86.600	
DEC 90.300	91.900	91.500	
CHLORIDE (MG/L)		DET'N LIMIT = 0.2	GUIDELINE = 250 (A3)
APR 11.000	.	17.400	
MAY 11.000	55.800	53.700	
JUN 11.600	52.400	51.200	
JUL 11.300	59.200	58.400	
AUG 11.500	56.600	44.300	
SEP 11.000	61.700	54.000	
OCT 10.400	51.800	57.600	
NOV 11.000	49.300	49.100	
DEC 10.100	44.700	44.600	
COLOUR (NZU)		DET'N LIMIT = 0.5	GUIDELINE = 5 (A3)
APR 12.500	.	1.000 <T	
MAY BDL	1.500 <T	2.500	
JUN 37.000	BDL	3.500	
JUL 19.500	BDL	2.500	
AUG 5.000	BDL	.500 <T	
SEP 8.500	.500 <T	.500 <T	
OCT 9.000	2.500	.500 <T	
NOV 10.000	1.500 <T	1.000 <T	
DEC 14.000	2.000 <T	1.500 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) — SITE 1

		STANDING	FREE FLOW	
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1.	GUIDELINE = 400 (F2)
	APR	536	.	576
	MAY	532	683	682
	JUN	529	668	664
	JUL	528	700	692
	AUG	530	687	646
	SEP	520	701	673
	OCT	512	678	696
	NOV	521	669	667
	DEC	533	671	665
DISS ORG CARBON (MG/L)			DET'N LIMIT = .100	GUIDELINE = 5.0 (A3)
	APR	2.200	.	.700
	MAY	2.200	1.300	1.600
	JUN	2.200	1.400	1.700
	JUL	2.100	1.200	1.300
	AUG	2.100	1.300	.800
	SEP	2.100	1.000	.900
	OCT	2.200	1.100	.800
	NOV	2.200	1.000	.800
	DEC	1.800	.800	.900
FLUORIDE (MG/L)			DET'N LIMIT = 0.01	GUIDELINE = 2.4 (A1)
	APR	.120	.	1.120
	MAY	.120	1.020	1.020
	JUN	.120	1.040	1.040
	JUL	.120	1.000	.980
	AUG	.120	1.020	1.080
	SEP	.120	1.060	1.100
	OCT	.120	1.120	1.100
	NOV	.140	1.080	1.040
	DEC	.140	1.140	1.120
HARDNESS (MG/L)			DET'N LIMIT = 0.5	GUIDELINE = 80-100 (A4)
	APR	279.000	.	288.000
	MAY	254.000	273.800	271.600
	JUN	273.900	270.800	274.100
	JUL	282.000	294.000	294.000
	AUG	282.300	288.500	289.600
	SEP	276.000	288.900	277.000
	OCT	278.000	287.000	283.000
	NOV	265.100	282.400	278.300
	DEC	284.000	295.000	293.800
IONCAL (DIMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
	APR	.826	.	.232
	MAY	5.937	2.972	4.063
	JUN	1.024	5.331	2.731
	JUL	.813	.784	1.684
	AUG	1.159	1.714	2.319
	SEP	.655	1.858	1.624
	OCT	4.942	1.425	.135
	NOV	3.431	1.816	3.640
	DEC	2.762	5.104	2.331

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) — SITE 1

		STANDING	FREE FLOW	
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
APR	1.212	.	1.134	
MAY	1.073	1.107	1.121	
JUN	.901	.890	.844	
JUL	1.283	1.216	1.199	
AUG	1.143	1.033	1.081	
SEP	1.162	1.027	.929	
OCT	1.270	1.328	1.356	
NOV	1.210	1.245	1.236	
DEC	1.162	1.074	1.080	
MAGNESIUM (MG/L)			DET'N LIMIT = 0.10	GUIDELINE = 30 (F2)
APR	13.500	.	18.700	
MAY	13.300	14.350	14.450	
JUN	13.800	14.300	14.950	
JUL	13.500	14.400	14.400	
AUG	14.550	15.550	16.900	
SEP	13.700	15.050	16.000	
OCT	13.900	15.700	15.100	
NOV	13.500	15.150	15.050	
DEC	14.250	15.950	15.850	
SODIUM (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 200 (A4)
APR	5.600	.	9.400	
MAY	6.000	31.400	30.100	
JUN	5.800	28.200	28.600	
JUL	5.600	33.000	32.200	
AUG	5.500	34.100	26.000	
SEP	6.000	37.700	31.200	
OCT	6.800	31.600	35.800	
NOV	5.400	28.300	27.100	
DEC	6.000	26.600	26.600	
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = 0.05 (F2)
APR	.360	.	BDL	
MAY	.344	BDL	BDL	
JUN	.334	BDL	BDL	
JUL	.306	BDL	BDL	
AUG	.370	.022	.002 <T	
SEP	.320	BDL	BDL	
OCT	.344	BDL	BDL	
NOV	.344	.002 <T	BDL	
DEC	.324	.042	BDL	
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1 (A1)
APR	.003 <T	.	.002 <T	
MAY	.003 <T	.009	.002 <T	
JUN	.002 <T	.028	.001 <T	
JUL	.005	.018	.004 <T	
AUG	.002 <T	.009	BDL	
SEP	.005	.009	.006	
OCT	.001 <T	BDL	.007	
NOV	.003 <T	.001 <T	.001 <T	
DEC	.007	BDL	.002 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

		STANDING	FREE FLOW	
TOTAL NITRATES (MG/L)			DET'N LIMIT = 0.005	GUIDELINE = 10 (A1)
APR	.005 <T	.	3.350	
MAY	.015 <T	3.380	3.350	
JUN	BDL	3.050	3.120	
JUL	.005 <T	3.530	3.530	
AUG	BDL	3.570	3.490	
SEP	BDL	3.650	3.620	
OCT	BDL	3.640	3.690	
NOV	.010 <T	3.720	3.720	
DEC	.005 <T	1.410	3.870	
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = 0.02	GUIDELINE = N/A
APR	.570	.	.110	
MAY	.530	.170	.140	
JUN	.490	.180	.160	
JUL	.510	.180	.160	
AUG	.460	.260	.150	
SEP	.470	.110	.080 <T	
OCT	.650	.110	.110	
NOV	.450	.110	.100	
DEC	.400	.070 <T	.080 <T	
PH (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
APR	8.380	.	8.350	
MAY	8.380	8.330	8.350	
JUN	8.090	8.110	8.070	
JUL	8.450	8.390	8.380	
AUG	8.320	8.230	8.290	
SEP	8.350	8.220	8.160	
OCT	8.470	8.530	8.560	
NOV	8.420	8.450	8.450	
DEC	8.330	8.260	8.270	
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = 0.0005	GUIDELINE = N/A
APR	.005	.	.	
MAY	.005	.	.	
JUN	.008	.	.	
JUL	.003	.	.	
AUG	.009	.	.	
SEP	BDL	.	.	
OCT	.011	.	.	
NOV	.006	.	.	
DEC	.001 <T	.	.	
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = .40 (F2)
APR	.010	.	.	
MAY	.011	.	.	
JUN	.008 <T	.	.	
JUL	.009 <T	.	.	
AUG	.013	.	.	
SEP	.012	.	.	
OCT	.016	.	.	
NOV	.072	.	.	
DEC	.009 <T	.	.	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

		STANDING	FREE FLOW	
SULPHATE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 500 (A3)
APR	55.540	.	57.880	
MAY	55.280	51.470	52.740	
JUN	55.250	51.320	51.770	
JUL	55.890	51.180	51.090	
AUG	56.090	50.670	52.360	
SEP	55.810	50.820	51.770	
OCT	56.290	52.490	51.930	
NOV	56.280	53.870	53.900	
DEC	54.510	53.890	54.210	
TURBIDITY (FTU)			DET'N LIMIT = 0.05	GUIDELINE = 1 (A1)
APR	10.000	.	.510	
MAY	10.900	.400	.500	
JUN	11.000	.560	.520	
JUL	8.000	.700	.650	
AUG	10.000	.520	.420	
SEP	9.500	.640	.320	
OCT	18.500	.240 <T	1.800	
NOV	8.000	.470	.450	
DEC	10.600	.660	.660	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

		STANDING	FREE FLOW	
METALS				
SILVER (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 50 (A1)
APR	BDL	.	BDL	
MAY	BDL	.300 <T	BDL	
JUN	BDL	BDL	BDL	
JUL	BDL	.080 <T	BDL	
AUG	BDL	.080 <T	BDL	
SEP	BDL	.140 <T	BDL	
OCT	BDL	.090 <T	BDL	
NOV	BDL	BDL	BDL	
DEC	BDL	BDL	BDL	
ALUMINUM (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 100 (A4)
APR	11.000	.	8.700	
MAY	39.000	25.000	25.000	
JUN	22.000	16.000	16.000	
JUL	4.100	3.400	3.600	
AUG	6.600	6.500	5.500	
SEP	8.500	7.200	7.200	
OCT	2.200	15.000	2.100	
NOV	2.000	1.800	1.800	
DEC	2.500	2.100	1.900	
ARSENIC (UG/L)			DET'N LIMIT = 0.10	GUIDELINE = 25 (A1)
APR	.140 <T	.	.210 <T	
MAY	.140 <T	.270 <T	.650 <T	
JUN	BDL	BDL	BDL	
JUL	BDL	.310 <T	.360 <T	
AUG	.240 <T	.200 <T	.230 <T	
SEP	.250 <T	.120 <T	BDL	
OCT	.150 <T	.350 <T	.330 <T	
NOV	.210 <T	.250 <T	.290 <T	
DEC	BDL	BDL	BDL	
BARIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 1000 (A2)
APR	170.000	.	55.000	
MAY	150.000	53.000	54.000	
JUN	150.000	49.000	47.000	
JUL	150.000	52.000	49.000	
AUG	160.000	54.000	52.000	
SEP	160.000	59.000	55.000	
OCT	160.000	57.000	53.000	
NOV	160.000	51.000	52.000	
DEC	160.000	51.000	51.000	
BORON (UG/L)			DET'N LIMIT = 2.00	GUIDELINE = 5000 (A1)
APR	40.000	.	13.000 <T	
MAY	77.000	74.000	16.000 <T	
JUN	14.000 <T	17.000 <T	16.000 <T	
JUL	22.000	25.000	24.000	
AUG	40.000	46.000	41.000	
SEP	37.000	30.000	30.000	
OCT	21.000	28.000	20.000 <T	
NOV	14.000 <T	17.000 <T	18.000 <T	
DEC	11.000 <T	20.000 <T	15.000 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

	STANDING	FREE FLOW	
BERYLLIUM (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 6800 (04)
APR	.060 <T	.	BDL
MAY	BDL	BDL	BDL
JUN	BDL	BDL	BDL
JUL	BDL	BDL	BDL
AUG	.060 <T	.070 <T	BDL
SEP	.060 <T	BDL	BDL
OCT	BDL	BDL	BDL
NOV	BDL	BDL	BDL
DEC	BDL	BDL	BDL
CADMIUM (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	BDL	.	BDL
MAY	BDL	BDL	BDL
JUN	BDL	.130 <T	BDL
JUL	BDL	BDL	BDL
AUG	BDL	.220 <T	BDL
SEP	BDL	.190 <T	BDL
OCT	BDL	.080 <T	.300 <T
NOV	BDL	.090 <T	BDL
DEC	BDL	.470 <T	BDL
COBALT (UG/L)		DET'N LIMIT = 0.02	GUIDELINE = N/A
APR	BDL	.	BDL
MAY	.170 <T	.210 <T	.130 <T
JUN	.220 <T	.220 <T	.050 <T
JUL	.430 <T	.420 <T	.330 <T
AUG	.060 <T	BDL	BDL
SEP	.060 <T	.370 <T	.290 <T
OCT	.060 <T	.080 <T	.030 <T
NOV	.150 <T	.150 <T	.160 <T
DEC	BDL	BDL	BDL
CHROMIUM (UG/L)		DET'N LIMIT = 0.50	GUIDELINE = 50 (A1)
APR	4.100 <T	.	BDL
MAY	3.600 <T	3.500 <T	BDL
JUN	BDL	BDL	BDL
JUL	2.400 <T	2.600 <T	2.400 <T
AUG	3.400 <T	4.000 <T	3.800 <T
SEP	3.700 <T	2.200 <T	2.200 <T
OCT	4.100 <T	5.900	3.000 <T
NOV	BDL	BDL	.700 <T
DEC	BDL	2.700 <T	BDL
COPPER (UG/L)		DET'N LIMIT = 0.50	GUIDELINE = 1000 (A3)
APR	BDL	.	280.000
MAY	BDL	2400.000	180.000
JUN	BDL	2100.000	260.000
JUL	BDL	2000.000	200.000
AUG	BDL	2100.000	430.000
SEP	BDL	2500.000	290.000
OCT	BDL	2600.000	220.000
NOV	BDL	2100.000	500.000
DEC	BDL	1200.000	480.000

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (NORTH WEST ONE)	SITE 1		
		STANDING	FREE FLOW	
IRON (UG/L)			DET'N LIMIT = 6.00	GUIDELINE = 300 (A3)
APR	1700.000	.	14.000 <T	
MAY	1700.000	37.000 <T	35.000 <T	
JUN	1700.000	47.000 <T	54.000 <T	
JUL	1600.000	46.000 <T	42.000 <T	
AUG	1600.000	53.000 <T	30.000 <T	
SEP	1600.000	39.000 <T	32.000 <T	
OCT	1700.000	39.000 <T	39.000 <T	
NOV	1600.000	51.000 <T	59.000 <T	
DEC	1600.000	37.000 <T	62.000	
MANGANESE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 50 (A3)
APR	160.000	.	31.000	
MAY	170.000	33.000	32.000	
JUN	160.000	50.000	47.000	
JUL	150.000	31.000	21.000	
AUG	150.000	27.000	17.000	
SEP	150.000	26.000	17.000	
OCT	150.000	27.000	22.000	
NOV	150.000	24.000	25.000	
DEC	140.000	23.000	28.000	
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.660	.	.340 <T	
MAY	.560	.330 <T	.270 <T	
JUN	.540	.280 <T	.300 <T	
JUL	.510	.350 <T	.300 <T	
AUG	.590	.320 <T	.350 <T	
SEP	.620	.560	.560	
OCT	.680	.390 <T	.360 <T	
NOV	.690	.430 <T	.380 <T	
DEC	.530	.330 <T	.350 <T	
NICKEL (UG/L)			DET'N LIMIT = 0.20	GUIDELINE = 350 (D3)
APR	BDL	.	BDL	
MAY	BDL	19.000	BDL	
JUN	BDL	42.000	BDL	
JUL	BDL	17.000	1.100 <T	
AUG	BDL	22.000	BDL	
SEP	BDL	18.000	.310 <T	
OCT	1.600 <T	27.000	2.400	
NOV	BDL	5.200	BDL	
DEC	BDL	73.000	1.600 <T	
LEAD (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 10. (A1)
APR	BDL	.	.950	
MAY	BDL	6.900	.590	
JUN	BDL	7.900	1.100	
JUL	.060 <T	9.600	1.400	
AUG	BDL	15.000	2.100	
SEP	BDL	12.000	2.500	
OCT	BDL	11.000	1.500	
NOV	BDL	7.600	1.500	
DEC	BDL	23.000	1.600	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) — SITE 1

	STANDING	FREE FLOW	
ANTIMONY (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 146 (D4)
APR	.370 <T	.490 <T	
MAY	.220 <T	.390 <T	BDL
JUN	.250 <T	.340 <T	.360 <T
JUL	.310 <T	.620	.570
AUG	.270 <T	.540	.490 <T
SEP	.210 <T	.530	.430 <T
OCT	.310 <T	.600	.440 <T
NOV	.330 <T	.540	.470 <T
DEC	.380 <T	.480 <T	.450 <T
SELENIUM (UG/L)		DET'N LIMIT = 1.00	GUIDELINE = 10 (A1)
APR	BDL	BDL	
MAY	BDL	BDL	BDL
JUN	BDL	2.300 <T	BDL
JUL	BDL	2.200 <T	1.600 <T
AUG	BDL	3.700 <T	2.200 <T
SEP	BDL	BDL	1.500 <T
OCT	BDL	1.500 <T	1.600 <T
NOV	BDL	BDL	1.500 <T
DEC	BDL	2.100 <T	1.100 <T
STRONTIUM (UG/L)		DET'N LIMIT = 0.10	GUIDELINE = N/A
APR	410.000	210.000	
MAY	390.000	200.000	200.000
JUN	390.000	190.000	200.000
JUL	380.000	190.000	190.000
AUG	370.000	190.000	210.000
SEP	400.000	210.000	210.000
OCT	410.000	220.000	210.000
NOV	410.000	210.000	210.000
DEC	400.000	210.000	220.000
TITANIUM (UG/L)		DET'N LIMIT = 0.50	GUIDELINE = N/A
APR	15.000	13.000	
MAY	29.000	24.000	24.000
JUN	29.000	24.000	24.000
JUL	32.000	25.000	25.000
AUG	22.000	17.000	19.000
SEP	31.000	27.000	28.000
OCT	9.100	7.100	6.800
NOV	17.000	13.000	13.000
DEC	22.000	9.000	8.800
URANIUM (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 100 (A1)
APR	BDL	.400 <T	
MAY	BDL	.490 <T	.440 <T
JUN	BDL	.480 <T	.460 <T
JUL	BDL	.440 <T	.410 <T
AUG	BDL	.490 <T	.460 <T
SEP	BDL	.420 <T	.400 <T
OCT	BDL	.480 <T	.500 <T
NOV	BDL	.430 <T	.410 <T
DEC	BDL	.400 <T	.470 <T

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (NORTH WEST ONE)	SITE 1		
		STANDING	FREE FLOW	
VANADIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.140 <T	.	.290 <T	
MAY	.110 <T	.060 <T	.130 <T	
JUN	.080 <T	BDL	BDL	
JUL	.130 <T	.120 <T	.170 <T	
AUG	.120 <T	.080 <T	.090 <T	
SEP	.120 <T	.140 <T	.130 <T	
OCT	.150 <T	.250 <T	.250 <T	
NOV	.090 <T	.070 <T	.090 <T	
DEC	.100 <T	BDL	.110 <T	
ZINC (UG/L)			DET'N LIMIT = 0.20	GUIDELINE = 5000 (A3)
APR	1.300 <T	.	4.700	
MAY	2.100	130.000	3.200	
JUN	2.900	150.000	7.400	
JUL	2.800	75.000	5.800	
AUG	2.500	200.000	9.200	
SEP	3.200	160.000	18.000	
OCT	1.300 <T	150.000	7.400	
NOV	3.900	310.000	11.000	
DEC	4.100	1800.000	14.000	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

		STANDING	FREE FLOW
PHENOLICS (UG/L	PHENOLICS)	DET'N LIMIT = .200	GUIDELINE = 2 (A4)
APR	.600 <T	.	.
MAY	BDL	.	.
JUN	.600 <T	.	.
JUL	BDL	.	.
AUG	BDL	.	.
SEP	BDL	.	.
OCT	1.000 <T	.	.
NOV	BDL	.	.
DEC	.800 <T	.	.

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

	STANDING	FREE FLOW	
VOLATILES			
BENZENE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	.050 <T	BDL	
MAY	BDL	.200 <T	
JUN	BDL	.300 <T	
JUL	BDL	.500 <T	
AUG	BDL	.100 <T	
SEP	BDL	.100 <T	
OCT	BDL	BDL	
NOV	BDL	.400 <T	
DEC	BDL	.700	
ETHYLBENZENE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 2.4 (A3)
APR	BDL	BDL	
MAY	.100 <T	.150 <T	
JUN	.100 <T	.150 <T	
JUL	BDL	.050 <T	
AUG	.050 <T	.100 <T	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	.050 <T	.100 <T	
DEC	.050 <T	.100 <T	
STYRENE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 100 (D1)
APR	BDL	BDL	
MAY	.150 <T	.200 <T	
JUN	.150 <T	.200 <T	
JUL	.050 <T	.150 <T	
AUG	.100 <T	.150 <T	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	.100 <T	.200 <T	
DEC	.150 <T	.150 <T	
CHLOROFORM (UG/L)		DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
APR	BDL	.300 <T	
MAY	BDL	2.900	
JUN	BDL	2.400	
JUL	BDL	4.400	
AUG	BDL	2.200	
SEP	BDL	1.400	
OCT	BDL	1.600	
NOV	BDL	2.700	
DEC	BDL	3.200	
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.02	GUIDELINE = 200 (D1)
APR	BDL	BDL	
MAY	BDL	.020 <T	
JUN	BDL	.020 <T	
JUL	BDL	.020 <T	
AUG	BDL	.020 <T	
SEP	BDL	.040 <T	
OCT	BDL	.060 <T	
NOV	BDL	BDL	
DEC	BDL	.040 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

	STANDING		FREE FLOW		
1,2 DICHLOROETHANE (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 5 (A1)
APR	BDL	.	BDL		
MAY	BDL	.	.100	<T	
JUN	BDL	.	BDL		
JUL	BDL	.	BDL		
AUG	BDL	.	BDL		
SEP	BDL	.	.050	<T	
OCT	BDL	.	BDL		
NOV	BDL	.	BDL		
DEC	BDL	.	BDL		
1,2 DICHLOROPROPANE (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 5 (D1)
APR	BDL	.	BDL		
MAY	BDL	.	BDL		
JUN	BDL	.	.050	<T	
JUL	BDL	.	BDL		
AUG	BDL	.	BDL		
SEP	BDL	.	.050	<T	
OCT	BDL	.	BDL		
NOV	BDL	.	BDL		
DEC	BDL	.	BDL		
TRICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0.10		GUIDELINE = 50 (A1)
APR	BDL	.	BDL		
MAY	BDL	.	.100	<T	
JUN	BDL	.	.100	<T	
JUL	BDL	.	.200	<T	
AUG	BDL	.	.100	<T	
SEP	BDL	.	.200	<T	
OCT	BDL	.	.200	<T	
NOV	BDL	.	.100	<T	
DEC	BDL	.	.100	<T	
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 350 (A1+)
APR	BDL	.	.150	<T	
MAY	BDL	.	3.050		
JUN	BDL	.	1.800		
JUL	BDL	.	7.500		
AUG	BDL	.	4.700		
SEP	BDL	.	3.500		
OCT	BDL	.	3.500		
NOV	BDL	.	5.700		
DEC	BDL	.	4.950		
CHLORODIBROMOMETHANE (UG/L)			DET'N LIMIT = 0.10		GUIDELINE = 350 (A1+)
APR	BDL	.	BDL		
MAY	BDL	.	1.900		
JUN	BDL	.	.800	<T	
JUL	BDL	.	8.400		
AUG	BDL	.	6.700		
SEP	BDL	.	6.000		
OCT	BDL	.	5.200		
NOV	BDL	.	7.800		
DEC	BDL	.	5.600		

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (NORTH WEST ONE) 1990

WELL DISTRIBUTION SYSTEM

RAW (NORTH WEST ONE) SITE 1

	STANDING	FREE FLOW	
BROMOFORM (UG/L)		DET'N LIMIT = 0.20	GUIDELINE = 350 (A1+)
APR	BDL	BDL	
MAY	BDL	.400 <T	
JUN	BDL	BDL	
JUL	BDL	1.600 <T	
AUG	BDL	2.400	
SEP	BDL	3.400	
OCT	BDL	2.600	
NOV	BDL	2.800	
DEC	BDL	1.800 <T	
TOTAL TRIHALOMETHANES (UG/L)		DET'N LIMIT = 0.50	GUIDELINE = 350 (A1)
APR	BDL	BDL	
MAY	BDL	5.300	
JUN	BDL	5.000 <T	
JUL	BDL	21.900	
AUG	BDL	16.000	
SEP	BDL	14.250	
OCT	BDL	12.950	
NOV	BDL	19.000	
DEC	BDL	15.600	

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (FIRST AVE) — SITE 1

		STANDING	FREE FLOW	
BACTERIOLOGICAL				
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 0 (A1)
APR	BDL	.	.	
MAY	0	.	.	
JUN	BDL	.	.	
JUL	BDL	.	.	
AUG	BDL	.	.	
SEP	0	.	.	
OCT	0	.	.	
NOV	0	.	.	
DEC	0	.	.	
STANDARD PLATE CNT MF (COUNT/ML)			DET'N LIMIT = 0	GUIDELINE = 500/ML (A3)
APR	.	.	1 <=>	
MAY	.	.	1500	
JUN	.	.	2400 >	
JUL	.	.	2400 >	
AUG	.	.	2400 >	
SEP	.	.	43	
OCT	.	.	1 <=>	
NOV	.	.	0 <=>	
DEC	.	.	0 <=>	
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 5/100ML(A1)
APR	BDL	.	.	
MAY	BDL	.	.	
JUN	BDL	.	.	
JUL	BDL	.	.	
AUG	BDL	.	.	
SEP	0	.	.	
OCT	0	.	.	
NOV	0	.	.	
DEC	0	.	.	
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	BDL	.	.	
MAY	BDL	.	.	
JUN	BDL	.	.	
JUL	28	.	.	
AUG	BDL	.	.	
SEP	0	.	.	
OCT	0	.	.	
NOV	0	.	.	
DEC	0	.	.	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL DISTRIBUTION SYSTEM

RAW (FIRST AVE) SITE 1

		STANDING	FREE FLOW	
CHEMISTRY (FLD)				
FLD CHLORINE (COMB) (MG/L)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	.	.	.000	
MAY	.	.100	.100	
JUN	.	.100	.100	
JUL	.	.100	.100	
AUG	.	.100	.100	
SEP	.	.100	.100	
OCT	.	.000	.000	
NOV	.	.000	.000	
DEC	.	.000	.000	
FLD CHLORINE FREE (MG/L)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	.	.	.100	
MAY	.	.300	.100	
JUN	.	.100	.100	
JUL	.	.100	.100	
AUG	.	.100	.100	
SEP	.	.100	.200	
OCT	.	.200	.300	
NOV	.	.100	.300	
DEC	.	.300	.300	
FLD CHLORINE (TOTAL) (MG/L)			DET'N LIMIT = 0	GUIDELINE = N/A
APR	.	.	.100	
MAY	.	.400	.200	
JUN	.	.200	.200	
JUL	.	.200	.200	
AUG	.	.200	.200	
SEP	.	.200	.300	
OCT	.	.200	.300	
NOV	.	.100	.300	
DEC	.	.300	.300	
FLD PH (DIMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
APR	7.300	.	7.400	
MAY	7.200	7.600	7.500	
JUN	7.400	7.200	7.500	
JUL	7.000	7.500	7.400	
AUG	7.400	7.500	7.500	
SEP	7.200	7.600	7.400	
OCT	7.400	7.500	7.400	
NOV	7.200	7.600	7.400	
DEC	7.400	7.600	7.500	
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A	GUIDELINE = 15 (A3)
APR	8.000	.	8.000	
MAY	8.500	15.000	12.000	
JUN	8.000	17.000	12.000	
JUL	9.000	16.000	15.000	
AUG	8.500	18.000	18.000	
SEP	10.000	18.000	18.000	
OCT	9.000	18.000	14.000	
NOV	9.000	14.000	12.000	
DEC	9.000	11.000	10.000	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (FIRST AVE) — SITE 1

		STANDING	FREE FLOW	
CHEMISTRY (LAB)				
ALKALINITY (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 30-500 (A4)
APR	211.100	.	209.900	
MAY	156.800	221.800	212.300	
JUN	274.700	214.600	212.400	
JUL	243.400	215.500	214.600	
AUG	245.100	210.200	210.800	
SEP	262.100	213.700	209.300	
OCT	217.100	210.100	213.600	
NOV	222.800	175.600	213.500	
DEC	273.500	215.300	215.000	
CALCIUM (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 100 (F2)
APR	77.600	.	84.800	
MAY	61.800	84.200	83.600	
JUN	106.800	81.900	81.800	
JUL	94.200	86.400	86.000	
AUG	95.300	85.800	84.100	
SEP	107.000	85.800	85.400	
OCT	79.700	88.000	85.800	
NOV	88.100	69.300	82.700	
DEC	111.800	87.300	88.700	
CHLORIDE (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 250 (A3)
APR	24.900	.	25.900	
MAY	24.900	21.000	14.700	
JUN	25.900	22.100	15.400	
JUL	27.700	15.000	15.600	
AUG	26.900	15.500	14.400	
SEP	26.900	15.700	13.600	
OCT	26.500	20.700	13.400	
NOV	26.900	15.700	15.700	
DEC	25.500	14.200	14.100	
COLOUR (HZU)			DET'N LIMIT = 0.5	GUIDELINE = 5 (A3)
APR	2.500	.	2.000 <T	
MAY	7.000	BDL	15.500	
JUN	2.000 <T	1.000 <T	.500 <T	
JUL	.500 <T	BDL	BDL	
AUG	.500 <T	BDL	.500 <T	
SEP	.500 <T	.500 <T	.500 <T	
OCT	1.000 <T	1.000 <T	.500 <T	
NOV	1.500 <T	1.000 <T	.500 <T	
DEC	1.500 <T	1.000 <T	.500 <T	
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1.	GUIDELINE = 400 (F2)
APR	676	.	593	
MAY	700	589	569	
JUN	706	588	568	
JUL	677	564	567	
AUG	666	564	561	
SEP	686	562	556	
OCT	629	583	567	
NOV	628	519	573	
DEC	706	573	570	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
DISS ORG CARBON (MG/L)			DET'N LIMIT = .100	GUIDELINE = 5.0 (A3)
APR	.600	.	.800	
MAY	.700	.800	.700	
JUN	1.000	.800	.500	
JUL	.600	.500	.500	
AUG	.500	.500	.400 <T	
SEP	.500	.400 <T	.400 <T	
OCT	.500	.600	.300 <T	
NOV	.600	.400 <T	.400 <T	
DEC	.500	.400 <T	.300 <T	
FLUORIDE (MG/L)			DET'N LIMIT = 0.01	GUIDELINE = 2.4 (A1)
APR	.100	.	1.080	
MAY	.100	1.180	1.200	
JUN	.100	1.200	1.260	
JUL	.100	1.220	1.200	
AUG	.120	1.200	1.220	
SEP	.100	1.240	1.260	
OCT	.100	1.220	1.240	
NOV	.120	1.180	1.180	
DEC	.100	1.280	1.260	
HARDNESS (MG/L)			DET'N LIMIT = 0.5	GUIDELINE = 80-100 (A4)
APR	288.000	.	284.000	
MAY	250.000	284.800	286.700	
JUN	362.300	280.800	283.900	
JUL	328.000	296.000	294.000	
AUG	334.400	296.700	293.600	
SEP	360.000	291.000	292.000	
OCT	293.600	298.000	295.000	
NOV	310.400	249.600	285.500	
DEC	374.800	298.700	302.700	
IONCAL (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
APR	5.283	.	.704	
MAY	.608	4.494	.968	
JUN	1.174	3.344	1.798	
JUL	3.393	.184	.034	
AUG	1.656	3.734	1.699	
SEP	1.578	.535	2.117	
OCT	4.268	4.477	2.007	
NOV	1.688	1.147	1.967	
DEC	2.709	2.121	3.681	
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
APR	.829	.	1.121	
MAY	.730	1.152	1.102	
JUN	1.051	.855	.862	
JUL	1.195	1.193	1.169	
AUG	1.094	1.109	1.102	
SEP	1.182	1.126	1.086	
OCT	1.145	1.328	1.336	
NOV	1.170	1.053	1.249	
DEC	1.339	1.106	1.133	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
MAGNESIUM (MG/L)			DET'N LIMIT = 0.10	GUIDELINE = 30 (F2)
APR	23.000	.	17.500	
MAY	23.200	18.150	18.900	
JUN	23.200	18.550	19.350	
JUL	22.700	19.500	19.300	
AUG	23.450	20.050	20.300	
SEP	22.600	18.700	19.200	
OCT	22.800	19.000	19.700	
NOV	22.000	18.600	19.200	
DEC	23.250	19.650	19.750	
SODIUM (MG/L)			DET'N LIMIT = 0.2	GUIDELINE = 200 (A4)
APR	11.600	.	14.000	
MAY	12.100	11.700	7.700	
JUN	11.800	11.200	7.300	
JUL	11.400	6.400	6.800	
AUG	11.600	8.100	6.900	
SEP	12.200	8.200	6.800	
OCT	13.800	12.400	7.600	
NOV	11.700	8.100	7.500	
DEC	11.500	6.600	6.500	
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = 0.05 (F2)
APR	BDL	.	BDL	
MAY	.004 <T	BDL	BDL	
JUN	BDL	BDL	BDL	
JUL	BDL	BDL	BDL	
AUG	.014	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	.022	BDL	.004 <T	
NOV	.008 <T	BDL	BDL	
DEC	.012	.002 <T	.006 <T	
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1 (A1)
APR	.027	.	.002 <T	
MAY	.032	.002 <T	.003 <T	
JUN	.029	.001 <T	.001 <T	
JUL	.041	.012	.006	
AUG	.024	.003 <T	.003 <T	
SEP	.028	.007	.006	
OCT	.024	BDL	.001 <T	
NOV	.023	BDL	BDL	
DEC	.028	.006	.007	
TOTAL NITRATES (MG/L)			DET'N LIMIT = 0.005	GUIDELINE = 10 (A1)
APR	1.240	.	3.220	
MAY	1.320	3.450	3.510	
JUN	1.250	3.240	3.280	
JUL	1.320	3.340	3.290	
AUG	1.240	3.310	3.300	
SEP	1.230	3.390	3.380	
OCT	1.180	3.430	3.410	
NOV	1.190	3.420	3.310	
DEC	1.190	3.420	3.460	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL	DISTRIBUTION SYSTEM		
RAW (FIRST AVE)	SITE 1		
	STANDING	FREE FLOW	
NITROGEN TOT KJELD (MG/L)		**DET'N LIMIT = 0.02**	**GUIDELINE = N/A**
APR	.140	.	.140
MAY	.070 <T	.090 <T	.060 <T
JUN	.080 <T	.100	.080 <T
JUL	.090 <T	.100	.120
AUG	.100	.110	.060 <T
SEP	.050 <T	.050 <T	.040 <T
OCT	.100	.080 <T	.050 <T
NOV	.090 <T	.060 <T	.050 <T
DEC	.040 <T	.020 <T	BDL
PH (DIMNSLESS)		**DET'N LIMIT = N/A**	**GUIDELINE = 6.5-8.5(A4)**
APR	8.090	.	8.340
MAY	8.220	8.350	8.320
JUN	8.060	8.080	8.090
JUL	8.310	8.390	8.370
AUG	8.200	8.320	8.320
SEP	8.210	8.330	8.300
OCT	8.380	8.530	8.540
NOV	8.350	8.430	8.470
DEC	8.330	8.300	8.320
PHOSPHORUS FIL REACT (MG/L)		**DET'N LIMIT = 0.0005**	**GUIDELINE = N/A**
APR	.000 <T	.	.
MAY	.000	.	.
JUN	BDL	.	.
JUL	.000 <T	.	.
AUG	BDL	.	.
SEP	BDL	.	.
OCT	BDL	.	.
NOV	.001 <T	.	.
DEC	.000 <T	.	.
PHOSPHORUS TOTAL (MG/L)		**DET'N LIMIT = 0.002**	**GUIDELINE = .40 (F2)**
APR	.002 <T	.	.
MAY	.002 <T	.	.
JUN	BDL	.	.
JUL	BDL	.	.
AUG	.031	.	.
SEP	BDL	.	.
OCT	BDL	.	.
NOV	.065	.	.
DEC	.002 <T	.	.
SULPHATE (MG/L)		**DET'N LIMIT = .200**	**GUIDELINE = 500 (A3)**
APR	76.380	.	56.090
MAY	74.670	58.110	58.160
JUN	73.610	55.730	56.930
JUL	75.060	58.250	58.210
AUG	75.080	56.750	58.020
SEP	73.200	57.000	57.670
OCT	74.840	56.930	58.480
NOV	73.550	57.810	57.790
DEC	72.560	56.750	56.030

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM			
	RAW (FIRST AVE)	SITE 1			
		STANDING		FREE FLOW	
TURBIDITY (FTU)			DET'N LIMIT = 0.05		GUIDELINE = 1 (A1)
APR	.700	.		.400	
MAY	.990	.280		.180	
JUN	1.020	.260		.460	
JUL	.680	.250	<T	.380	
AUG	1.300	.210	<T	.130	<T
SEP	1.400	.220		.220	
OCT	.750	.280		.240	<T
NOV	.690	.180	<T	.260	
DEC	.910	.430		.430	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL — DISTRIBUTION SYSTEM

RAW (FIRST AVE) — SITE 1

	STANDING	FREE FLOW	
METALS			
ALUMINUM (UG/L)		DET'N LIMIT = 0.10	GUIDELINE = 100 (A4)
APR	8.200	.	8.800
MAY	26.000	31.000	34.000
JUN	17.000	19.000	20.000
JUL	3.200	3.800	3.400
AUG	5.400	5.900	5.500
SEP	6.500	7.400	7.500
OCT	2.000	1.700	1.600
NOV	2.000	2.000	2.500
DEC	1.900	1.900	2.300
ARSENIC (UG/L)		DET'N LIMIT = 0.10	GUIDELINE = 25 (A1)
APR	.500 <T	.	.410 <T
MAY	.390 <T	.260 <T	.280 <T
JUN	.160 <T	BDL	BDL
JUL	.270 <T	BDL	.220 <T
AUG	.360 <T	.470 <T	.510 <T
SEP	.360 <T	.200 <T	.140 <T
OCT	.450 <T	.360 <T	.250 <T
NOV	.380 <T	.280 <T	.260 <T
DEC	.160 <T	.110 <T	.150 <T
BARIUM (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 1000 (A2)
APR	90.000	.	55.000
MAY	86.000	57.000	56.000
JUN	83.000	53.000	53.000
JUL	86.000	54.000	54.000
AUG	87.000	52.000	56.000
SEP	85.000	57.000	54.000
OCT	90.000	59.000	55.000
NOV	87.000	56.000	56.000
DEC	91.000	59.000	57.000
BORON (UG/L)		DET'N LIMIT = 2.00	GUIDELINE = 5000 (A1)
APR	68.000	.	22.000
MAY	43.000	45.000	82.000
JUN	26.000	13.000 <T	12.000 <T
JUL	37.000	22.000	21.000
AUG	60.000	40.000	43.000
SEP	64.000	40.000	35.000
OCT	41.000	25.000	15.000 <T
NOV	26.000	13.000 <T	11.000 <T
DEC	24.000	9.400 <T	9.200 <T
BERYLLIUM (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 6800 (D4)
APR	.140 <T	.	BDL
MAY	BDL	BDL	.060 <T
JUN	BDL	BDL	BDL
JUL	BDL	BDL	BDL
AUG	.060 <T	.070 <T	.090 <T
SEP	.080 <T	.060 <T	BDL
OCT	BDL	BDL	BDL
NOV	BDL	BDL	BDL
DEC	BDL	BDL	BDL

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
CADMIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 5 (A1)
APR	BDL	.	BDL	
MAY	BDL	.060 <T	BDL	
JUN	BDL	BDL	BDL	
JUL	BDL	BDL	BDL	
AUG	BDL	BDL	.110 <T	
SEP	BDL	.090 <T	.070 <T	
OCT	BDL	.150 <T	BDL	
NOV	BDL	BDL	BDL	
DEC	BDL	BDL	BDL	
COBALT (UG/L)			DET'N LIMIT = 0.02	GUIDELINE = N/A
APR	.030 <T	.	BDL	
MAY	.180 <T	.120 <T	BDL	
JUN	.170 <T	.050 <T	.080 <T	
JUL	.380 <T	.240 <T	.280 <T	
AUG	BDL	BDL	BDL	
SEP	.030 <T	.040 <T	.130 <T	
OCT	.090 <T	BDL	BDL	
NOV	.210 <T	.160 <T	.110 <T	
DEC	BDL	BDL	BDL	
CHROMIUM (UG/L)			DET'N LIMIT = 0.50	GUIDELINE = 50 (A1)
APR	7.600	.	1.200 <T	
MAY	1.000 <T	2.000 <T	4.600 <T	
JUN	BDL	BDL	BDL	
JUL	3.400 <T	3.100 <T	2.900 <T	
AUG	5.000 <T	4.100 <T	4.200 <T	
SEP	5.700	4.500 <T	4.000 <T	
OCT	9.100	7.000	1.800 <T	
NOV	BDL	.580 <T	BDL	
DEC	BDL	BDL	BDL	
COPPER (UG/L)			DET'N LIMIT = 0.50	GUIDELINE = 1000 (A3)
APR	BDL	.	17.000	
MAY	BDL	15.000	32.000	
JUN	.750 <T	54.000	25.000	
JUL	.550 <T	16.000	17.000	
AUG	BDL	18.000	44.000	
SEP	BDL	57.000	23.000	
OCT	BDL	35.000	20.000	
NOV	BDL	18.000	20.000	
DEC	BDL	43.000	17.000	
IRON (UG/L)			DET'N LIMIT = 6.00	GUIDELINE = 300 (A3)
APR	93.000	.	37.000 <T	
MAY	110.000	BDL	15.000 <T	
JUN	100.000	24.000 <T	BDL	
JUL	83.000	BDL	BDL	
AUG	90.000	BDL	68.000	
SEP	91.000	13.000 <T	BDL	
OCT	100.000	66.000	9.000 <T	
NOV	96.000	10.000 <T	7.900 <T	
DEC	100.000	BDL	26.000 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
MERCURY (UG/L)			DET'N LIMIT = 0.02	GUIDELINE = 1 (A1)
APR	BDL	.	.	
MAY	BDL	.	.	
JUN	BDL	.	.	
JUL	.060 <T	.	.	
AUG	BDL	.	.	
SEP	BDL	.	.	
OCT	.110	.	.	
NOV	BDL	.	.	
DEC	BDL	.	.	
MANGANESE (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 50 (A3)
APR	47.000	.	19.000	
MAY	49.000	5.800	3.400	
JUN	49.000	11.000	4.500	
JUL	47.000	2.300	2.300	
AUG	49.000	4.400	15.000	
SEP	50.000	3.000	1.300	
OCT	51.000	5.800	1.800	
NOV	52.000	2.500	2.100	
DEC	54.000	1.200	8.900	
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.730	.	.310 <T	
MAY	.690	.410 <T	.220 <T	
JUN	.550	.280 <T	.300 <T	
JUL	.660	.220 <T	.250 <T	
AUG	.590	.290 <T	.370 <T	
SEP	.630	.270 <T	.290 <T	
OCT	.690	.330 <T	.270 <T	
NOV	.660	.310 <T	.350 <T	
DEC	.760	.230 <T	.250 <T	
NICKEL (UG/L)			DET'N LIMIT = 0.20	GUIDELINE = 350 (D3)
APR	BDL	.	BDL	
MAY	BDL	.550 <T	BDL	
JUN	BDL	BDL	BDL	
JUL	2.600	1.700 <T	1.300 <T	
AUG	.440 <T	BDL	.740 <T	
SEP	BDL	BDL	BDL	
OCT	3.100	2.800	1.900 <T	
NOV	BDL	BDL	BDL	
DEC	BDL	BDL	BDL	
LEAD (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 10. (A1)
APR	BDL	.	.180 <T	
MAY	BDL	.070 <T	.300 <T	
JUN	BDL	.490 <T	.150 <T	
JUL	BDL	.260 <T	.260 <T	
AUG	BDL	.200 <T	1.200	
SEP	BDL	.870	.390 <T	
OCT	.090 <T	.960	.320 <T	
NOV	BDL	.210 <T	.280 <T	
DEC	BDL	.580	.260 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
ANTIMONY (UG/L)			**DET'N LIMIT = 0.05**	**GUIDELINE = 146 (D4)**
APR	.520	.	.490 <T	
MAY	.280 <T	.680	.330 <T	
JUN	.330 <T	.380 <T	.430 <T	
JUL	.420 <T	.400 <T	.330 <T	
AUG	.360 <T	.400 <T	.390 <T	
SEP	.340 <T	.440 <T	.260 <T	
OCT	.370 <T	.420 <T	.290 <T	
NOV	.330 <T	.350 <T	.280 <T	
DEC	.490 <T	.300 <T	.320 <T	
SELENIUM (UG/L)			**DET'N LIMIT = 1.00**	**GUIDELINE = 10 (A1)**
APR	BDL	.	BDL	
MAY	BDL	BDL	BDL	
JUN	BDL	BDL	BDL	
JUL	BDL	BDL	BDL	
AUG	BDL	1.400 <T	1.200 <T	
SEP	BDL	BDL	BDL	
OCT	BDL	BDL	BDL	
NOV	BDL	BDL	BDL	
DEC	BDL	BDL	1.200 <T	
STRONTIUM (UG/L)			**DET'N LIMIT = 0.10**	**GUIDELINE = N/A**
APR	260.000	.	200.000	
MAY	250.000	210.000	200.000	
JUN	250.000	200.000	200.000	
JUL	240.000	190.000	190.000	
AUG	240.000	190.000	190.000	
SEP	260.000	200.000	200.000	
OCT	270.000	210.000	200.000	
NOV	260.000	210.000	210.000	
DEC	270.000	210.000	210.000	
TITANIUM (UG/L)			**DET'N LIMIT = 0.50**	**GUIDELINE = N/A**
APR	13.000	.	12.000	
MAY	27.000	25.000	26.000	
JUN	26.000	25.000	26.000	
JUL	26.000	29.000	28.000	
AUG	17.000	21.000	19.000	
SEP	24.000	25.000	27.000	
OCT	7.200	7.100	7.600	
NOV	13.000	15.000	15.000	
DEC	16.000	18.000	18.000	
URANIUM (UG/L)			**DET'N LIMIT = 0.05**	**GUIDELINE = 100 (A1)**
APR	.860	.	.440 <T	
MAY	.830	.630	.510	
JUN	.710	.420 <T	.440 <T	
JUL	.830	.420 <T	.420 <T	
AUG	.880	.520	.440 <T	
SEP	.940	.510	.510	
OCT	.860	.460 <T	.440 <T	
NOV	.770	.460 <T	.530	
DEC	.780	.460 <T	.420 <T	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

	WELL	DISTRIBUTION SYSTEM		
	RAW (FIRST AVE)	SITE 1		
		STANDING	FREE FLOW	
VANADIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = N/A
APR	.360 <T	.	.520	
MAY	.120 <T	.290 <T	.290 <T	
JUN	BDL	.130 <T	.190 <T	
JUL	.160 <T	.240 <T	.220 <T	
AUG	.100 <T	.160 <T	.160 <T	
SEP	.080 <T	.170 <T	.200 <T	
OCT	.140 <T	.240 <T	.190 <T	
NOV	BDL	.140 <T	.130 <T	
DEC	.100 <T	.220 <T	.210 <T	
ZINC (UG/L)			DET'N LIMIT = 0.20	GUIDELINE = 5000 (A3)
APR	1.700 <T	.	15.000	
MAY	2.600	18.000	35.000	
JUN	3.300	25.000	14.000	
JUL	4.000	15.000	14.000	
AUG	2.300	17.000	57.000	
SEP	3.200	53.000	23.000	
OCT	1.700 <T	66.000	19.000	
NOV	3.400	23.000	22.000	
DEC	3.000	24.000	14.000	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL DISTRIBUTION SYSTEM

RAW (FIRST AVE) SITE 1

		STANDING	FREE FLOW	
PESTICIDES & PCB				
ATRAZINE (NG/L)		DET'N LIMIT = 50		GUIDELINE = 60000 (A2)
APR	BDL	.	.	
MAY	220.000 <T	.	.	
JUN	210.000 <T	.	.	
JUL	BDL	.	.	
AUG	200.000 <T	.	.	
SEP	230.000 <T	.	.	
OCT	290.000 <T	.	.	
NOV	330.000 <T	.	.	
DEC	!IS	.	.	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL DISTRIBUTION SYSTEM

RAW (FIRST AVE) SITE 1

		STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS	DET'N LIMIT = .200	GUIDELINE = 2 (A4)
APR	BDL	.	.
MAY	BDL	.	.
JUN	.600 <T	.	.
JUL	.600 <T	.	.
AUG	.600 <T	.	.
SEP	.400 <T	.	.
OCT	1.600	.	.
NOV	BDL	.	.
DEC	.800 <T	.	.

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL		DISTRIBUTION SYSTEM	
RAW (FIRST AVE)		SITE 1	
	STANDING		FREE FLOW
VOLATILES			
ETHYLBENZENE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 2.4 (A3)
APR	BDL	BDL	
MAY	BDL	BDL	
JUN	BDL	BDL	
JUL	BDL	.100 <T	
AUG	BDL	BDL	
SEP	BDL	.050 <T	
OCT	BDL	BDL	
NOV	BDL	.100 <T	
DEC	BDL	BDL	
STYRENE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 100 (D1)
APR	BDL	BDL	
MAY	BDL	BDL	
JUN	BDL	.050 <T	
JUL	BDL	.250 <T	
AUG	BDL	BDL	
SEP	BDL	.100 <T	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
CHLOROFORM (UG/L)		DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
APR	8.000	1.100	
MAY	8.400	.100 <T	
JUN	10.400	.200 <T	
JUL	12.000	.100 <T	
AUG	13.200	.200 <T	
SEP	12.100	.600 <T	
OCT	10.300	1.200	
NOV	10.800	1.500	
DEC	11.800	1.400	
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.02	GUIDELINE = 200 (D1)
APR	.560	BDL	
MAY	.880	BDL	
JUN	.920	BDL	
JUL	.780	BDL	
AUG	.900	BDL	
SEP	.860	BDL	
OCT	.780	BDL	
NOV	1.020	BDL	
DEC	1.180	BDL	
1,2 DICHLOROPROPANE (UG/L)		DET'N LIMIT = 0.05	GUIDELINE = 5 (D1)
APR	.400 <T	BDL	
MAY	BDL	BDL	
JUN	.600	BDL	
JUL	.650	BDL	
AUG	.600	BDL	
SEP	.650	BDL	
OCT	.600	BDL	
NOV	.600	BDL	
DEC	.700	BDL	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM SIMCOE SPRING SUPPLY (FIRST AVE) 1990

WELL DISTRIBUTION SYSTEM

RAW (FIRST AVE) SITE 1

	STANDING		FREE FLOW	
DICHLOROBROMOMETHANE (UG/L)		**DET'N LIMIT = 0.05**		**GUIDELINE = 350 (A1+)**
APR	BDL	.	.550	
MAY	BDL	.	.150	<T
JUN	BDL	.	.150	<T
JUL	BDL	.	.200	<T
AUG	BDL	.	.250	<T
SEP	BDL	.	1.150	
OCT	BDL	.	1.900	
NOV	BDL	.	3.050	
DEC	BDL	.	2.800	
CHLORODIBROMOMETHANE (UG/L)		**DET'N LIMIT = 0.10**		**GUIDELINE = 350 (A1+)**
APR	BDL	.	.200	<T
MAY	BDL	.	.100	<T
JUN	BDL	.	BDL	
JUL	BDL	.	.200	<T
AUG	BDL	.	.300	<T
SEP	BDL	.	2.100	
OCT	BDL	.	3.100	
NOV	BDL	.	4.000	
DEC	BDL	.	3.800	
T-CHLOROETHYLENE (UG/L)		**DET'N LIMIT = 0.05**		**GUIDELINE = 5 (D1)**
APR	BDL	.	BDL	
MAY	BDL	.	BDL	
JUN	BDL	.	BDL	
JUL	.100	<T .	BDL	
AUG	.150	<T .	BDL	
SEP	.150	<T .	BDL	
OCT	.150	<T .	BDL	
NOV	.150	<T .	BDL	
DEC	.150	<T .	BDL	
BROMOFORM (UG/L)		**DET'N LIMIT = 0.20**		**GUIDELINE = 350 (A1+)**
APR	BDL	.	BDL	
MAY	BDL	.	BDL	
JUN	BDL	.	BDL	
JUL	BDL	.	BDL	
AUG	BDL	.	BDL	
SEP	BDL	.	1.800	<T
OCT	BDL	.	2.000	
NOV	BDL	.	1.800	<T
DEC	BDL	.	1.800	<T
TOTAL TRIHALOMETHANES (UG/L)		**DET'N LIMIT = 0.50**		**GUIDELINE = 350 (A1)**
APR	8.000	.	1.850	<T
MAY	8.400	.	BDL	
JUN	10.400	.	BDL	
JUL	12.000	.	.500	<T
AUG	13.200	.	.750	<T
SEP	12.100	.	5.700	
OCT	10.300	.	8.300	
NOV	10.750	.	10.350	
DEC	BDL	.	9.800	

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

TABLE 6
DRINKING WATER SURVEILLANCE PROGRAM 1990

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILT.	CT/ML	0	500/ML (A3)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100ML (A1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	0	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	0	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	0	N/A
FIELD PH	DMNSLESS	N/A	6.5-8.5 (A3)
FIELD TEMPERATURE	DEG.C	N/A	15.0 (A3)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	0.2	30-500 (A3)
AMMONIUM TOTAL	MG/L	0.002	0.05 (F2)
CALCIUM	MG/L	0.2	100 (F2)
CHLORIDE	MG/L	0.2	250 (A3)
COLOUR	TCU	0.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.0	400 (F2)
CYANIDE	MG/L	0.001	0.2 (A1)
DISSOLVED ORGANIC CARBON	MG/L	0.1	5.0 (A3)
FLUORIDE	MG/L	0.01	2.4 (A1)
HARDNESS	MG/L	0.5	80-100 (A4)
LANGELIERS INDEX	DMNSLESS	N/A	N/A
MAGNESIUM	MG/L	0.1	30.0 (F2)
NITRITE	MG/L	0.001	1.0 (A1)
NITROGEN TOTAL KJELDAHL	MG/L	0.02	N/A
PH	DMNSLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	0.0005	N/A
PHOSPHORUS TOTAL	MG/L	0.002	0.4 (F2)
SODIUM	MG/L	0.2	200 (A4)
SULPHATE	MG/L	0.2	500 (A3)
TOTAL NITRATES	MG/L	0.005	10.0 (A1)
TURBIDITY	FTU	0.05	1.0 (A1)
CHLOROAROMATICS			
123 TRICHLOROBENZENE	NG/L	5.0	N/A
1234 TETRACHLOROBENZENE	NG/L	1.0	N/A
1235 TETRACHLOROBENZENE	NG/L	1.0	N/A
124 TRICHLOROBENZENE	NG/L	5.0	10000 (I)
1245-TETRACHLOROBENZENE	NG/L	1.0	38000 (D4)
135 TRICHLOROBENZENE	NG/L	5.0	N/A
236 TRICHLOROTOLUENE	NG/L	5.0	N/A
245 TRICHLOROTOLUENE	NG/L	5.0	N/A
26A TRICHLOROTOLUENE	NG/L	5.0	N/A
HEXACHLOROBENZENE	NG/L	1.0	10 (C1)
HEXACHLOROBUTADIENE	NG/L	1.0	450 (D4)
HEXACHLOROCYCLOPENTADIENE	NG/L	5.0	206000 (D4)
HEXACHLOROETHANE	NG/L	1.0	1900 (D4)
OCTACHLOROSTYRENE	NG/L	1.0	N/A
PENTACHLOROBENZENE	NG/L	1.0	74000 (D4)
CHLOROPHENOLS			
234 TRICHLOROPHENOL	NG/L	100.0	N/A
2345 TETRACHLOROPHENOL	NG/L	20.0	N/A
2356 TETRACHLOROPHENOL	NG/L	10.0	N/A

TABLE 6
DRINKING WATER SURVEILLANCE PROGRAM 1990

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
245 TRICHLOROPHENOL	NG/L	100.0	2600000 (D4)
246 TRICHLOROPHENOL	NG/L	20.0	5000 (A1)
PENTACHLOROPHENOL	NG/L	10.0	60000 (A1)
METALS			
ALUMINUM	UG/L	0.10	100 (A4)
ANTIMONY	UG/L	0.05	146 (D4)
ARSENIC	UG/L	0.10	25 (A1)
BARIUM	UG/L	0.05	1000 (A2)
BERYLLIUM	UG/L	0.05	6800 (D4)
BORON	UG/L	2.00	5000 (A1)
CADMIUM	UG/L	0.05	5 (A1)
CHROMIUM	UG/L	0.50	50 (A1)
COBALT	UG/L	0.02	N/A
COPPER	UG/L	0.50	1000 (A3)
IRON	UG/L	6.00	300 (A3)
LEAD	UG/L	0.05	10 (A1)
MANGANESE	UG/L	0.05	50 (A3)
MERCURY	UG/L	0.02	1 (A1)
MOLYBDENUM	UG/L	0.05	N/A
NICKEL	UG/L	0.20	350 (D3)
SELENIUM	UG/L	1.00	10 (A1)
SILVER	UG/L	0.05	50 (A1)
STRONTIUM	UG/L	0.10	N/A
THALLIUM	UG/L	0.05	13 (D4)
TITANIUM	UG/L	0.50	N/A
URANIUM	UG/L	0.05	100 (A1)
VANADIUM	UG/L	0.05	N/A
ZINC	UG/L	0.20	5000 (A3)
PAH			
ANTHRACENE	NG/L	1.0	N/A
BENZO(A) ANTHRACENE	NG/L	20.0	N/A
BENZO(A) PYRENE	NG/L	5.0	10.0 (A1)
BENZO(B) CHRYSENE	NG/L	2.0	N/A
BENZO(B) FLUORANTHENE	NG/L	10.0	N/A
BENZO(E) PYRENE	NG/L	50.0	N/A
BENZO(G,H,I) PERYLENE	NG/L	20.0	N/A
BENZO(K) FLUORANTHENE	NG/L	1.0	N/A
CHRYSENE	NG/L	50.0	N/A
CORONENE	NG/L	10.0	N/A
DIBENZO(A,H) ANTHRACENE	NG/L	10.0	N/A
DIMETHYL BENZO(A) ANTHRACENE	NG/L	5.0	N/A
FLUORANTHENE	NG/L	20.0	42000.0 (D4)
INDENO(1,2,3-C,D) PYRENE	NG/L	20.0	N/A
PERYLENE	NG/L	10.0	N/A
PHENANTHRENE	NG/L	10.0	N/A
PYRENE	NG/L	20.0	N/A
PESTICIDES & PCB			
ALACHLOR (LASSO)	NG/L	500.0	5000 (A2)
ALDRIN	NG/L	1.0	700 (A1)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700 (G)
ALPHA CHLORDANE	NG/L	2.0	7000 (A1)
AMETRINE	NG/L	50.0	300000 (D3)
ATRATONE	NG/L	50.0	N/A
ATRAZINE	NG/L	50.0	60000 (A2)
DES ETHYL ATRAZINE	NG/L	200.0	60000 (A2)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300 (G)
CYANAZINE (BLADEX)	NG/L	100.0	10000 (A2)
O,P-DDD	NG/L	5.0	10 (I)
DIELDRIN	NG/L	2.0	700 (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000 (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	5.0	74000 (D4)

TABLE 6
DRINKING WATER SURVEILLANCE PROGRAM 1990

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	5.0	N/A
ENDRIN	NG/L	5.0	1600 (D3)
GAMMA CHLORDANE	NG/L	2.0	7000 (A1)
HEPTACHLOR	NG/L	1.0	3000 (A1)
HEPTACHLOR EPOXIDE	NG/L	1.0	3000 (A1)
LINDANE (GAMMA BHC)	NG/L	1.0	4000 (A1)
METHOXYCHLOR	NG/L	5.0	900000 (A1)
METOLACHLOR	NG/L	500.0	50000 (A2)
METRIBUZIN (SENCOR)	NG/L	100.0	80000 (A1)
MIREX	NG/L	5.0	N/A
P,P-DDD	NG/L	5.0	N/A
O,P-DDT	NG/L	5.0	30000 (A1)
OXYCHLORDANE	NG/L	2.0	N/A
PCB	NG/L	20.0	3000 (A2)
PPDDE	NG/L	1.0	30000 (A1)
PPDDT	NG/L	5.0	30000 (A1)
PROMETONE	NG/L	50.0	52500 (D3)
PROMETRYNE	NG/L	50.0	1000 (A2)
PROPAZINE	NG/L	50.0	700000 (D3)
SIMAZINE	NG/L	50.0	10000 (A2)
D-ETHYL SIMAZINE	NG/L	200.0	10000 (A2)
TOXAPHENE	NG/L	500.0	5000 (A1)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	0.2	2 (A4)
SPECIFIC PESTICIDES			
2,4 D PROPIONIC ACID	NG/L	100.	N/A
2,4,5-TRICHLOROPHENOXY ACETIC ACID	NG/L	50.	280000 (A1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000 (A1)
24-DICHLORORPHENOXYBUTYRIC ACID (24-DB)	NG/L	200.	18000 (B3)
BUTYLATE (SUTAN)	NG/L	2000.	245000 (D3)
CARBARYL (SEVIN)	NG/L	200.	90000 (A1)
CARBOFURAN	NG/L	2000.	90000 (A1)
CHLORPYRIFOS (DURSBAN)	NG/L	20.	N/A
CICP (CHLORPROPHAM)	NG/L	2000.	350000 (G)
DIALLATE	NG/L	2000.	N/A
DIAZINON	NG/L	20.	20000 (A1)
DICAMBA	NG/L	50.	120000 (A1)
DICHLOROVOS	NG/L	20.	N/A
EPTAM	NG/L	2000.	N/A
ETHION	NG/L	20.	35000 (G)
IPC	NG/L	2000.	N/A
MALATHION	NG/L	20.	190000 (A1)
METHYL PARATHION	NG/L	50.	7000 (B3)
METHYLTRITHION	NG/L	20.	N/A
MEVINPHOS	NG/L	20.	N/A
PARATHION	NG/L	20.	50000 (A1)
PHORATE (THIMET)	NG/L	20.	2000 (A2)
PROPOXUR (BAYGON)	NG/L	2000.	140000 (D3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
SILVEX (2,4,5-TP)	NG/L	20.	10000 (A1)
VOLATILES			
1,1 DICHLOROETHANE	UG/L	0.10	N/A
1,1 DICHLOROETHYLENE	UG/L	0.10	7 (D1)
1,2 DICHLOROBENZENE	UG/L	0.05	200 (A1)
1,2 DICHLOROETHANE	UG/L	0.05	5 (A1)

TABLE 6
DRINKING WATER SURVEILLANCE PROGRAM 1990

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
1,2 DICHLOROPROPANE	UG/L	0.05	5 (D1)
1,3 DICHLOROBENZENE	UG/L	0.10	3750 (D3)
1,4 DICHLOROBENZENE	UG/L	0.10	5 (A1)
111, TRICHLOROETHANE	UG/L	0.02	200 (D1)
112 TRICHLOROETHANE	UG/L	0.05	0.6 (D4)
1122 TETRACHLOROETHANE	UG/L	0.05	0.17(D4)
BENZENE	UG/L	0.05	5 (A1)
BROMOFORM	UG/L	0.20	350 (A1+)
CARBON TETRACHLORIDE	UG/L	0.20	5 (A1)
CHLOROBENZENE	UG/L	0.10	1510 (D3)
CHLORODIBROMOMETHANE	UG/L	0.10	350 (A1+)
CHLOROFORM	UG/L	0.10	350 (A1+)
DICHLOROBROMOMETHANE	UG/L	0.05	350 (A1+)
ETHLYENE DIBROMIDE	UG/L	0.05	50 (D1)
ETHYLBENZENE	UG/L	0.05	2.4 (A3)
M-XYLENE	UG/L	0.10	300 (A3*)
METHYLENE CHLORIDE	UG/L	0.50	50 (A1)
O-XYLENE	UG/L	0.05	300 (A3*)
P-XYLENE	UG/L	0.10	300 (A3*)
STYRENE	UG/L	0.05	100 (D1)
TETRACHLOROETHYLENE	UG/L	0.05	5 (D1)
TRANS 1,2 DICHLOROETHYLENE	UG/L	0.10	70 (D1)
TOLUENE	UG/L	0.05	24 (A3)
TOTAL TRIHALOMETHANES	UG/L	0.50	350 (A1)
TRICHLOROETHYLENE	UG/L	0.10	50 (A1)

DRINKING WATER SURVEILLANCE PROGRAM
PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In 1990, 76 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment (MOE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

DATA REPORTING MECHANISM

When the analytical results are transferred from the MOE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOE District Officer, the appropriate operational staff and are also retained by the DWSP unit.

PROGRAM INPUTS AND OUTPUTS

There are four major inputs and four major outputs in the program.

Program Input - Plant and Distribution System Description

The system description includes plant specific non-analytical information acquired through a questionnaire and an initial plant visit. During the initial assessment of the plant and distribution system, questionnaire content is verified and missing information added. It is intended that all data be kept current with scheduled annual updates.

The Plant and Distribution System Description consists of the following seven components:

1. PROCESS COMPONENT INVENTORY
All physical and chemical processes to which the water is subjected, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. TREATMENT CHEMICALS
Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. Chemical dosages applied on the day of sampling are recorded in DWSP.

3. PROCESS CONTROL MEASUREMENTS
Documentation of in-plant monitoring of process parameters (eg. turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. Except for the recorded Field Data, in-plant monitoring results are not retained in DWSP but are retained by the water treatment plant personnel.

4. DESIGN FLOW AND RETENTION TIME
Hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. Maximum, minimum and average flow, as well as a record of the flow rate on the day of sampling, are recorded in DWSP.

5. DISTRIBUTION SYSTEM DESCRIPTION
This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. SAMPLING SYSTEM
Each plant is assessed for its adequacy in terms of the sampling of bacteriological, organic and inorganic parameters. Prime considerations in the assessment and design of the sampling system are:

i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;

ii/ the water being sampled is not being modified by the sampling system;

iii/ the sample tap must be in a clean area of the plant, preferably a lab area; and

iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake,

discharge and tap); pump characteristics (model, type, capacity); and flow rate.

7. PERSONNEL
This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate MOE personnel associated with the plant.

Program Input - Field Data

The second major input to DWSP is field data. Field data is collected at the plant and from the distribution system sites on the day of sampling. Field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling, as well as, monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analyzed according to standardized DWSP protocols to allow for interplant comparison.

Program Input - Laboratory Analytical Data

The third major input to DWSP is Laboratory Analytical Data. Samples gathered from the raw, treated and distribution sampling sites are analyzed for the presence of approximately 180 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. Parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments, parameters may be measured in a "scan" producing some results for parameters that are not on the DWSP priority list, but which may be of interest. The majority of parameters are measured on a routine basis. Those that are technically more difficult and/or costly to analyze, however, are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change, notation will be made and comparison data documented.

Program Input - Parameter Reference Information

The fourth major input to DWSP is Parameter Reference Information. This is a catalogue of information for each substance analyzed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database. An example is shown in figure 1.

Program output - Query

All DWSP information is easily accessed through the Query function, therefore, anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOE offices is being developed by the DWSP group.

Program Output - Action Alerts

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the Ontario Drinking Water Objectives publication. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective, an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of the confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedances at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, guidelines/limits from other agencies are used. The Parameter Listing System, published by MOE (ISBN 0-7729-4461-X), catalogues and keeps current guidelines for 650 parameters from agencies throughout the world. If these guidelines are exceeded, the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

Program Output - Report Generation

Custom reports can be generated from DWSP to meet MOE Regional needs and to respond to public requests.

Program Output - Annual Reports

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG.1

MOE - DRINKING WATER ASSESSMENT PROGRAM (DWSP)

PARAMETER REFERENCE INFORMATION

BENZENE (B2001P) VOLATILES

CLASS: HEALTH METHOD: P0C0D0 UNIT: µg/L

SOURCE	FROM	TO	METHOD	GUIDELINE	UNIT	NOTE
CAL C	85/01			0.700	µg/L	AL
CDWG C	87/01			5.000	µg/L	MAC
EPA C	87/07			5.000	µg/L	MCL
EPAA C	80/11			6.600	µg/L	AMBIENT **
FERC C	84/05			1.000	µg/L	MCL
WHO C	84/01			10.000	µg/L	GV

DESCRIPTION: **NAME:** BENZENE
CAS#: 71-43-2
MOLECULAR FORMULAE: C_6H_6
DETECTION LIMIT: (FOR METHOD POCODO) 0.05 µg/L
SYNONYMS: BENZOL; BENZOLE; COAL NAPHTHA; CARBON OIL (27). CYCLOHEXATRIENE (41).
CHARACTERISTICS: COLOURLESS TO LIGHT-YELLOW, MOBILE, NON-POLAR LIQUID, OF HIGHLY REFRACTIVE NATURE, AROMATIC ODOUR; VAPOURS BURN WITH SMOKING FLAME (30).
PROPERTIES: SOLUBILITY IN WATER: 1780-1800 mg/L AT 25C (41). THRESHOLD ODOUR: 0.5 - 10 PPM IN WATERTHRESHOLD TASTE: 0.5 mg/L IN WATER (39).
ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING ORGANISMS AND APPEARS TO ACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT A HIGH LIPID CONTENT OR REPRESENT MAJOR METABOLIC SITES, SUCH AS LIVER OR BRAIN; SMALL QUANTITIES EVAPORATE FROM SOILS OR ARE DEGRADED RATHER QUICKLY (80).
SOURCES: COMMERCIAL: PETROLEUM REFINING; SOLVENT RECOVERY; COAL TAR DISTILLATION (39); FOOD PROCESSING AND TANNING INDUSTRIES; COMBUSTION OF CAR EXHAUST.
ENVIRONMENTAL: POSSIBLE SOURCE IS RUNOFF.
USES: DETERGENTS; NYLON; INTERMEDIATE IN PRODUCTION OF

OTHER COMPOUNDS, SUCH AS PESTICIDES; SOLVENT FOR EXTRACTION AND RECTIFICATION IN RUBBER INDUSTRY; DEGREASING AND CLEANSING AGENT; GASOLINE.

TOXICITY: RATING: 4 (VERY TOXIC).
ACUTE: IRRITATING TO MUCOUS MEMBRANES; SYMPTOMS INCLUDE RESTLESSNESS, CONVULSIONS, EXCITEMENT, DEPRESSION; DEATH MAY FOLLOW RESPIRATORY FAILURE.
CHRONIC: MAY CAUSE ANAEMIA AND LEUKAEMIA (45); MUTAGENIC.
MODE OF ACTION: CHROMOABERRATION IN LYMPHOCYTE CULTURES.

CARCINOGENICITY: A KNOWN HUMAN CARCINOGEN.

REMOVAL: THE FOLLOWING PROCESSES HAVE BEEN SUCCESSFUL IN REMOVING BENZENE FROM WASTEWATER: GAC ADSORPTION, PRECIPITATION WITH ALUM AND SUBSEQUENT REMOVAL VIA SEDIMENTATION, COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION, OXIDATION

ADDITIONAL PROPERTIES:
MOLECULAR WEIGHT: 78.12
MELTING POINT: 5.5°C (27).
BOILING POINT: 80.1°C (27).
SPECIFIC GRAVITY: 0.8790 AT 20°C (27).
VAPOUR PRESSURE: 100 MM AT 26.1°C (27).
HENRY'S LAW CONSTANT: 0.00555 ATM-M3/MOLE (41).
LOG OCT./WATER PARTITION COEFFICIENT: 1.95 TO 2.13 (39).
CARBON ADSORPTION: K=1.0; 1/N=1.6; R=0.97; PH=5.3 (41)SEDIMENT/WATER PARTITION COEFFICIENT: NO DATA

NOTES: EPA PRIORITY POLLUTANT.

Appendix B

DWSP SAMPLING GUIDELINE

i) Raw and Treated at Plant

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-220 mL plastic bottle with white seal on cap -do not rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (**Caution:** HNO_3 is corrosive)
Volatiles (duplicates) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do not rinse bottle -fill bottle completely without bubbles
Organics (OWOC), (OWTRI), (OAPAHX)	-1 L amber glass bottle per scan -do not rinse bottle -fill to 2 cm from top -when 'special pesticides' are requested three extra bottles must be filled
Cyanide	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops sodium hydroxide (NaOH) (**Caution:** NaOH is corrosive)

Mercury	-250 mL glass bottle -rinse bottle and cap three times -fill to top of label -add 20 drops each nitric acid (HNO_3) and potassium dichromate ($K_2Cr_2O_7$) (**Caution:** HNO_3&$K_2Cr_2O_7$ are corrosive)
Phenols	-250 mL glass bottle -do <u>not</u> rinse bottle, preservative has been added -fill to top of label
Radionuclides (as scheduled)	-4 L plastic jug -do <u>not</u> rinse, carrier added -fill to 5 cm from top
Organic Characterization (GC/MS - once per year)	-1 L amber glass bottle; instructions as per organic -250 mL glass bottle -do <u>not</u> rinse bottle -fill completely without bubbles

<u>Steps:</u>

1. Let sampling water tap run for an adequate time to clear the sample line.

2. Record time of day on submission sheet.

3. Record temperature on submission sheet.

4. Fill up all bottles as per instructions.

5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top

Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (**Caution:** HNO_3 is corrosive)

Steps:

1. Record time of day on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.
5. Fill general chemistry and metals bottles.
6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-250 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid HNO_3 (**Caution:** HNO_3 is corrosive)

Volatiles (duplicate) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do not rinse bottle, preservative has been added -fill bottle completely without bubbles
Organics (OWOC) (OAPAHX)	-1 L amber glass bottle per scan -do not rinse bottle -fill to 2 cm from top

Steps:

1. Record time of day on submission sheet.

2. Let cold water flow for five minutes.

3. Record temperature on submission sheet.

4. Fill all bottles as per instructions.

5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.